

# THE IRON AGE

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## Castings Without Green-Sand Molds

Dry-Sand Cores in Iron Box  
Give Cylinder Blocks Close  
to Required Dimensions—  
Continuous Pour on  
Conveyors



**M**OLDS for the Cylinder Blocks of the Dodge Victory and Standard Six Cars Are Made Entirely of Dry-Sand Cores. The rectangular wedge-shaped box takes the place of the flask. The men are setting in the last core which closes the mold

**G**REEN sand molds have been entirely eliminated in the manufacture of automobile cylinder block castings by Dodge Brothers, Inc., Detroit. The mold is now made entirely of dry sand cores. This interesting development in foundry methods is a step in the evolution of molding practices. It is said to result in a marked saving in labor and in floor space and in the production of castings which are better than those made by the former practices, in that they are more uniform in dimensions, in metal thickness and in weight. The mold, it is stated, is held within closer limits because the dry sand core has less tendency to give than a green sand mold. Heretofore for several years the Dodge foundry has been making only the drag half of the mold in green sand, using a one-piece flask and bottom board.

The mold is now made in a rectangular wedge-shaped box, which has superseded the one-piece flask and bottom board. This box is machined on the inside within 0.002-in. limits. The cores are so made that they fit into one another. Before they are assembled in the box they are inspected and gaged. The mold is built up upside down, as it is carried along on a conveyor.

First the water jacket core is placed on the bottom of the box. On top and around this is placed the water jacket block core, which forms the outside of the water jacket in the casting. On top of this a valve spring housing core is placed. Then come two side cores which form the outside of the crank case and a portion of the barrels. Next, the barrel core is put in the center of the water jacket, between the cylinder block core and valve spring core. This forms the inside of the barrel wall. The crank case core is placed between two side cores and two end cores, which form the gear housing or front end of the crank case and the fly-wheel mounting or rear end of the crank case, and over the cylinder barrel cores. The joint around this core is mudded to prevent iron from running out through the seam.

Clamps are then placed on top of the boxes and two runner boards are put on. The molds are then poured with two 100-lb. hand ladles, which are filled from a 2000-lb. bull ladle.

The cores are made in core machines and baked in continuous ovens, usual methods being followed in their manufacture. A whitewash coating is applied to the cores. This is used in place of a black coating, because of its high heat-



**T**RANSFERRING  
the Mold from the  
Pouring Conveyor  
(Above) to the Cool-  
ing Conveyor

**A**N Overhead Chain  
Conveyor (at  
Right) Lifts the Cast-  
ings from the Cooling  
Conveyor at Its Un-  
loading End. Here any  
cores that may be  
sticking to it are re-  
moved, this being the  
first step in cleaning  
the castings



resisting qualities, because it is cleaner to work with and for the reason that white cores reflect the light and make the core room a brighter, cleaner-looking room. Cores on completion pass down an inclined belt conveyor from the core room to the foundry floor, and over another belt conveyor to the cylinder line. The inside of the molding box is oiled to prevent the cores from sticking. This is sprayed on before the making of each mold. Gas which arises during the pouring is carried away through vents in the bottom of the molding box, that index with holes in the water-jacket core.

Passing the end of the mold conveyor after pouring, the molding box, which is provided with trunnions at the two ends, is picked up by an electric traveling crane. It is turned over on its trunnions and the casting and cores fall out on an apron-type cooling conveyor 10 ft. wide and 165 ft. long. The casting remains on this conveyor 90 min. to allow it to normalize. At the unloading end of the apron

conveyor it is hooked off by means of an overhead chain conveyor and is cleaned of any cores which may be sticking to the casting. The castings are then placed on the floor, where they cool at room temperature. When they go to the cleaning room the core wires are removed and they are sand blasted, chipped and ground. They are then water tested to 100 lb. pressure.

The cylinder molding unit occupies a space 30 ft. x 165 ft. In this there are three conveyors, the molding conveyor, a return box conveyor and the shakeout and cooling conveyors. The unit has a capacity of 1800 cylinder block castings in 18 hr., and it has established a record of 1600 castings in 16 hr. with two shifts.

With the old methods and without conveyor equipment 300 cylinder blocks were produced in 9 hr. in a foundry floor space of approximately 60 x 350 ft. There is also a reduction in the space required for sand handling, molding machines and supplies.

The number of cores required depends on the design of the cylinder block and number of cylinders. A 6-cylinder block is being made with 338 lb. of core sand, or 87 lb. more than would be used in making the same casting in a green sand mold, but offsetting this is the elimination of the use of molding sand.

There is a saving in labor, it is stated, of 21 men, in making 1000 cylinder blocks a shift, as compared with the old method of using one-piece flasks and green sand molds.

Traveling over the apron-type conveyor shown above, the castings are not under a hood and the muffle effect which might thereby be obtained is not experienced. This is in contrast with the practice in certain foundries, both

**C**OMPLETED Dry Sand Cores (at Right) Move Down the Inclined Belt Conveyor to the Foundry Floor and on to Another Belt Conveyor to the Cylinder Line, Where They Are Assembled in the Molding Box While the Latter Is Moving on a Conveyor



**C**HECKING the Accuracy of a Cylinder Core by Means of Jigs (Left). This is a most important part of the procedure, if the casting is to maintain the close limits of accuracy now demanded—in metal thickness, total weight and uniformity of dimensions

in the automotive field and elsewhere, of providing hoods for carrying away fumes and heated air. Where these cooling conveyors are provided with exhaust fans the cool-

ing of the castings proceeds, of course, at an accelerated pace. Frequently, in such cases, the product emerges at the other end in condition to be handled at once.

## Sea-Water Corrosion of Steels

**F**IRST results are now available of the extended study of sea-water corrosion sponsored by the British Institution of Civil Engineers. Exposures of iron and steel are being made at Auckland, New Zealand; Halifax, Nova Scotia; Colombo, Ceylon, and Plymouth, England, on three groups, intended to be continued during five, ten and 15 years respectively. The five-year groups included not only single metals, but also pairs of dissimilar metals in contact with each other, the object being to throw light on the tendency in such pairs for one metal to be preserved at the expense of the other.

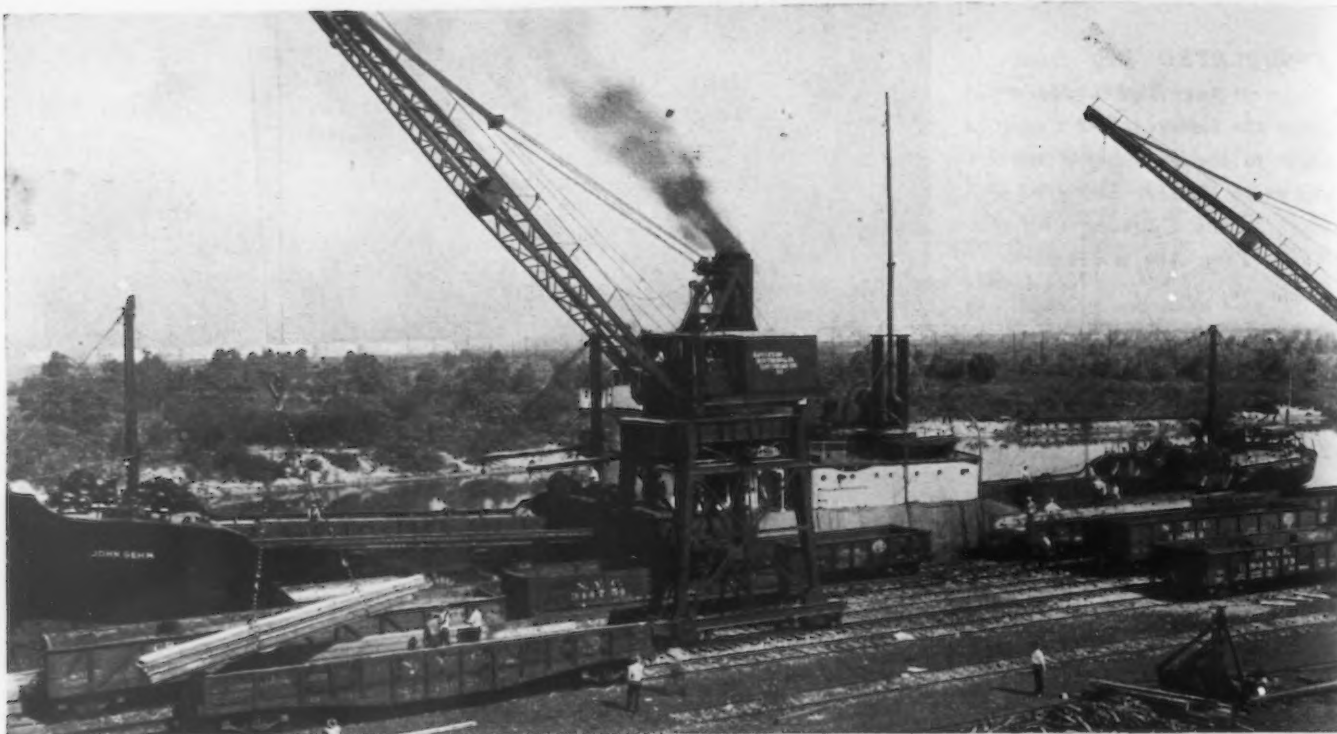
The first five years having fully expired, the samples from each port have been removed and examined by Dr. J. N. Friend. In each harbor each group of samples was divided into three sets, respectively fixed in the air above the water, at half-tide level, and totally submerged.

It is found that the five-year results from the various

ports show very satisfactory agreement with each other. Among other observations it is found that there is no great difference between the extent of corrosion of mild steel and of wrought iron, although in pairs of the two metals in contact the wrought iron corrodes more quickly, while the steel is partially preserved. Sulphur in steel appears to reduce its resistance to sea-water corrosion, and copper up to 2 per cent to increase it. Chromium steels and nickel steels, though very resistant to sea air and at half-tide level, are less so when totally submerged, and are also liable to severe pitting.

In resistance to corrosion as measured by loss of weight and pitting combined, the cast irons give the best results, but in some instances seem to show internal corrosion. The protection afforded to nickel or chromium steel by contact with mild steel at the expense of the latter is very marked.





## Public Docks Encourage Water Shipments to Chicago

**C**HICAGO is now served by three public docks equipped to handle iron and steel. These are operated by the Terminals & Transportation Corporation of Illinois at 103d Street and the Calumet River, South Chicago, Ill.; the East Chicago Dock Terminal Co., Indiana Harbor, Ind., and the South Chicago Coal & Dock Co., South Chicago, Ill.

### Chain of Water Terminals on Lakes

The first unit of the Terminals & Transportation Corporation, a terminal and warehouse at Duluth, Minn., was put in operation in 1923. Since that time similar facilities have been provided at Port Huron, Mich., Buffalo, Detroit and Chicago. In addition to these dock warehouses, the company has two transportation lines, the Minnesota-Atlantic Transit Co. and the Detroit-New York Transit Co. The Detroit-New York Transit Co. operates Diesel-electric motorships between Detroit and New York on regular schedules. The running time between the two cities is less than six days. The Minnesota-Atlantic Transit Co. operates steel steamers between Duluth and Buffalo, with stops at intermediate ports.

The Terminals & Transportation Corporation will finance goods in storage, making loans based on market value. Briefly, the whole service comprises:

1. Unloading of merchandise from railroad cars to boats.
2. Classification and storage.
3. Freezing, bonding and other special services.
4. Delivery to railroad, boat, express company or truck.
5. Transportation over Lake and canal line between Duluth, Chicago, Milwaukee, Port Huron, Detroit, Buffalo and New York.
6. Financial cooperation.

The McDougall terminal of the Terminals & Transportation

The illustration at the top of the page shows a cargo of structural steel being unloaded at the dock of the East Chicago Dock & Terminal Co., Indiana Harbor, Ind. The steel was shipped from a Lake Erie port.

Corporation at Duluth has 1500 ft. of dock, with two 3-ton electric cranes for handling heavy freight. The track capacity is 70 railroad cars. The terminal buildings are 128 ft. wide and several hundred feet in length, containing 350,000 sq. ft. of general storage space and 1,000,000 cu. ft. for cold storage. The main structure is six stories high.

At Detroit there are 1300 ft. of dock, handling bulk and package freight, the track capacity being 150 cars. The terminal building is 160 x 500 ft., 10 stories in height, and contains 800,000 sq. ft. of floor space. There are 2,500,000 cu. ft. of cold storage space and 5,000,000 cu. ft. for general storage. The tracks inside the building accommodate 25 cars.

At Buffalo, the Eastern terminus of heavy ship tonnage on the Great Lakes and the Western terminus of the New York State Barge Canal, the company has 1580 ft. of dock and a track capacity of 100 cars. The warehouse, 1050 ft. in length, provides 2,000,000 cu. ft. of general merchandise storage space and 2,000,000 cu. ft. for cold storage.

The terminal at Chicago includes a dock 1440 ft. long, which is equipped with two 30-ton locomotive cranes. The track capacity is 100 railroad cars. The steel storage warehouse is 80 x 600 ft.

Dock and warehouse facilities at Chicago were completed near the end of 1927, and therefore comparative figures of iron and steel shipments are not available. The company, at least at Chicago, is in the early stages of developing business. The terminal at Chicago is not equipped to handle coal or ore, but it has facilities for handling pig iron and iron and steel products.

The East Chicago Dock Terminal Co., a newly formed corporation, a subsidiary of the Interstate Terminal Warehouses, Inc., which owns and operates the North Pier Terminal at the mouth of the Chicago River, purchased in November, 1927, approximately 20 acres of ground on the



southeast bank of the Indiana Harbor Ship Canal, between Canal Street and the fork, having 1500 feet of dock frontage.

It also has a three-year option on approximately 77 acres of adjoining property, giving an additional 1700 ft. of dockage. This will give a total of 97 acres of open storage, but the company contemplates building sheds as soon as demand warrants. The property is located at the entrance of the Calumet River, which is a part of the Illinois waterways system, connecting with the Mississippi River. This dock is served by the Indiana Harbor Belt, the Baltimore & Ohio Chicago Terminal, the Elgin, Joliet & Eastern and the Pennsylvania railroads. The dock is laid out with four tracks running parallel to the water's edge, having a capacity of between 80 and 100 cars on the dock and from 40 to 50 additional cars on the lead-in track.

The dock is equipped with two 15-ton locomotive cranes, each having 55-ft. booms. There are also two 20-ton gantry cranes with 70-ft. spans. Ore-handling capacity is 4000 tons per day. Pig iron can be handled at the rate of 150 tons per hour by means of 55-in. and 65-in. magnets. Clam-shell buckets are provided in 1½ and 2½-cu. yd. capacities. Structural steel sections have been handled in lengths up to 90 ft.

This company, as previously stated, controls the North Pier Terminal at the mouth of the Chicago River, where 1,500,000 sq. ft. of storage space is available. It also operates warehouses at Cleveland and Indianapolis.

This year there have been received at this dock between 25 and 30 boats. Several have carried cargoes directly from European ports. Others have moved from the Atlantic Coast, Canadian ports, Buffalo, Cleveland and Detroit, with commodities destined not only to Chicago, but to points beyond, such as Denver, Kansas City, St. Louis and Milwaukee. There have also been a number of boats loaded for out-bound movement from Chicago to both American and Canadian ports on the Great Lakes.

The dock of the South Chicago Coal & Dock Co., South Chicago, Ill., is used to unload ore for rail shipment to Granite City, Ill. Four hundred thousand tons of ore passed over this dock in 1927, and an equal tonnage will be handled

before the close of navigation in 1928. The shipping charge on ore loaded at Escanaba, Mich., for delivery at Chicago is 47c. a gross ton and from Superior, Wis., to Chicago, 70c. a gross ton. The rail rate on ore from Chicago to Granite City is \$1.20 a ton. The South Chicago dock charges 21c. a gross ton for unloading and putting the ore on cars. This dock is 700 ft. in length. It is equipped with a gantry crane which will unload free running ore at the rate of 350 tons an hour. Consideration is now being given to the installation of a second crane equipped to handle structural material. Open air facilities are available for storage of ore, pig iron and structural material. The storage charge on pig iron varies from 5c. to 10c. a gross ton per month.

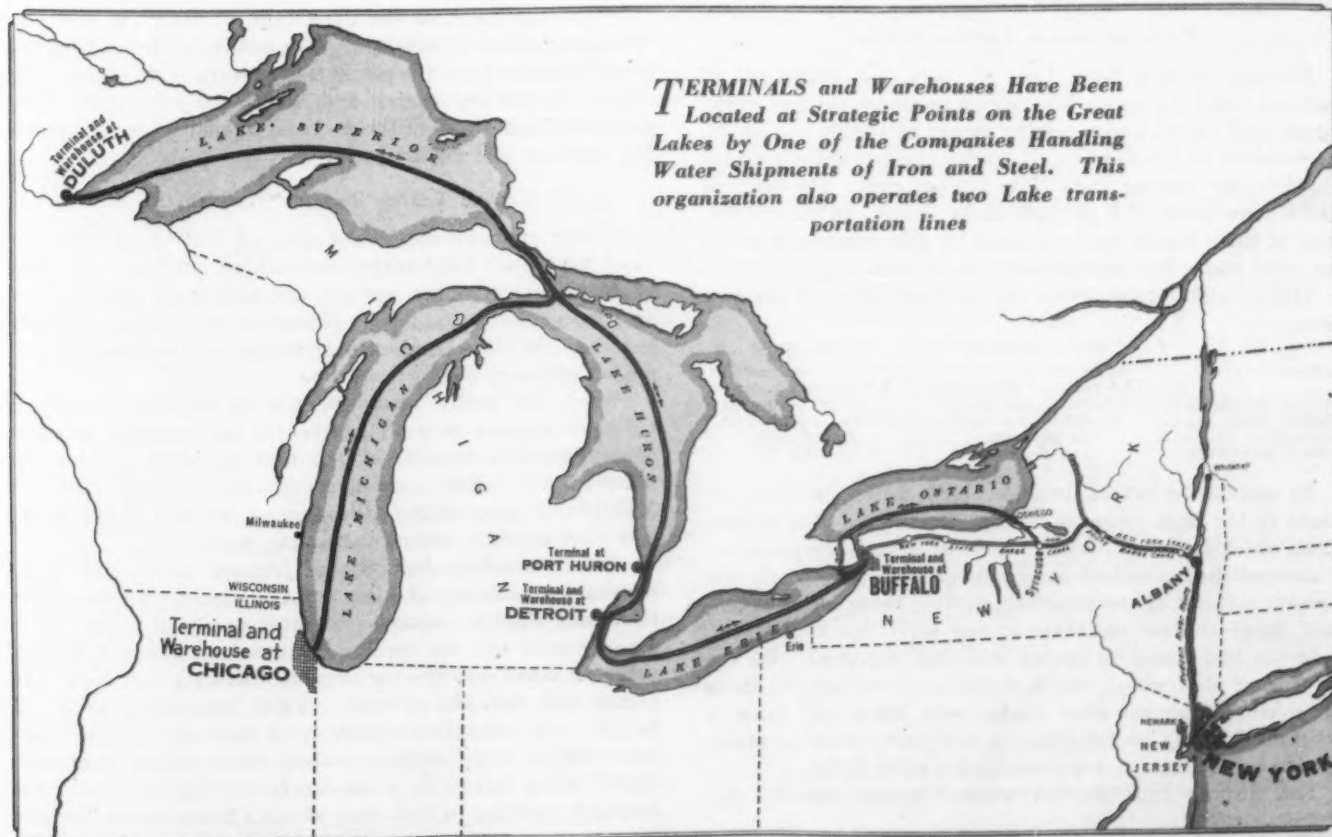
#### Sharp Gain in Water Shipments of Steel

Lake shipments of structural shapes to Chicago thus far in 1928 have averaged about 3000 tons a week. Up to Aug. 1 fully 20,000 tons of bars had been brought to Chicago by boat, and an equal tonnage is expected to be unloaded during August alone. In 1927 the Lake movement of structural shapes to Chicago was practically nil and the tonnage of bars shipped was negligible.

Boat shipments of pig iron from Lake Erie ports to Chicago totaled about 30,000 tons in 1927. The movement this year, up to Aug. 1, aggregated about 25,000 tons. The shipping season for pig iron in 1928 opened much earlier than in 1927, but, because of recent reductions in prices by Chicago furnaces, there is less incentive for Chicago brokers to bring in cargoes of pig iron than there was a year ago at this time. It is understood, however, that several vessels are still under contract and will handle cargoes to Chicago regardless of the existing relation between furnace prices of pig iron at Chicago and Lake Erie ports.

A boatload of low phosphorus pig iron has been shipped to Chicago directly from England in this season of navigation, and negotiations for a second shipment are now under way. It is also planned to arrange for direct boat shipments of ferromanganese from England and of spiegeleisen from Germany to Chicago.

The low phosphorus pig iron shipped from England was delivered to a Chicago dock for somewhat less than \$5.50 a



gross ton. A rate of \$5.50 a gross ton now being quoted on a proposed shipment from England to Chicago includes stops at two ports. Ferromanganese can also be handled at this rate. The vessels that will be available for these voyages across the ocean are said to be boats now being

built in Europe for Canadian service on the Great Lakes.

The Lake rate on pig iron from Cleveland to Chicago ranges from \$1.25 to \$1.50 a ton. Structural material can be moved from either Buffalo or Cleveland to Chicago at \$1 to \$1.25 a ton.

# Performance Records of Stainless Steel

## British Firms Find It Preferable for Pistons for Hydraulic Pumps, Blades for Steam Turbines, and Gas Engine Valves

BY N. F. BUDGEN, PH.D.\*

CUTLERY is the most natural application of stainless steel. Its use enables large dining rooms to abolish the cleaning machines, to save work and reduce the wear of the blades. Surgical and dental instruments which must be protected against sterilizing agents are now usually made of stainless steel rather than of silver plated carbon steel. At Sheffield alone 750 tons of this metal is produced annually for cutlery manufacture.

There are three important further applications in mechanical construction which deserve special mention; namely, pistons for pumps or hydraulic presses, turbine blades and valves for internal combustion engines.

### Pump Liners Resist Erosion

Davy Brothers, Ltd., Sheffield, England, built in 1915 a three cylinder pump, electric driven, for a pressure of 10,000 lb. per sq. in. One of the pistons was made of stainless steel, the other two of the more usual phosphor bronze.

This pump worked day and night until the end of the war. On inspection the diameter of the stainless steel piston was found to be reduced only 0.4 mm. in diameter, while the other two pistons were 2.8 mm. smaller. This reduction in wear evidently favors the conservation of power and the satisfactory working of the pump.

### Tests on Steam Turbine Blades

Thomas Firth & Sons, Ltd., Sheffield, manufacturers of stainless steel, possess a Westinghouse steam turbine working at 3000 r.p.m., and receiving steam at 170 lb. per sq. in. superheated at 315 deg. C. It works uninterruptedly under a load factor varying from 25 to 100 per cent. The original blades were made of 5 per cent nickel steel. In June, 1920, some of these blades were replaced by others made of stainless steel and a few replacements were made in nickel steel.

The following table gives the characteristics of the two metals.

	Stainless Steel	Nickel Steel
Composition .....	0.30 per cent carbon 13.4 per cent chromium	0.19 per cent carbon 4.7 per cent nickel
Tensile strength ..	122,000 lb. per sq. in.	78,000 lb. per sq. in.
Elastic limit .....	99,000 lb. per sq. in.	54,000 lb. per sq. in.
Elongation .....	20 per cent	32 per cent
Brinell hardness ..	255	143

As mentioned before, in June, 1920, 24 blades were replaced in the high pressure wheel. On the one side of this wheel which functions in dry steam at a high temperature, 12 non-polished stainless steel blades were placed; on the opposite side six of the same metal, with three made of polished stainless steel and three of new nickel steel.

In the last wheel 12 blades were also replaced. On the one side of this wheel, which works in damp steam, three non-polished stainless steel blades were fitted and three in nickel steel, while on the opposite side three polished stainless steel and three nickel steel blades were fitted.

The turbine thus altered worked uninterruptedly for

3471 hr.; it was then taken down and while the nickel steel blades revealed the usual corrosion, the stainless steel ones were intact and had preserved all their original polish.

Results of these trials have been confirmed by those obtained by the Thomson-Houston company on one of its own turbines. At the beginning of 1916, this firm installed blades of a trial composition in the middle wheel of a turbine, but the wheel began to show corrosion very soon. Two hardened stainless steel blades were then fitted into this wheel, two of the same material hardened and tempered, two of phosphor bronze, two of nickel bronze, two of ordinary soft steel and two brass ones. This turbine was started in the autumn of 1916 and was not examined until April, 1918. With the exception of those made of stainless steel all the blades suffered slight erosion. Brass blades were especially worn. The extremities of the blades made of soft steel had become slightly uneven, while the nickel bronze ones had resisted as well as those made of stainless steel.

The turbine then operated until July, 1921, when it was found that the stainless steel blades were absolutely untouched on the edges. The inlet edges of the nickel bronze blades as well as the phosphor bronze ones had become uneven; those of soft steel were heavily corroded, the wear being about 1½ mm.

Such records show the advantage of stainless steel for the construction of turbines. The outline of the blades has great influence upon the performance; variations at the edges impart shocks and eddies, and reduce the efficiency. Non-corrosive blades reduce the necessary repairs and stoppages for cleaning and replacement.

### Air Engine Valves Require Strength at Heat

Lastly may be mentioned the application of stainless steel for valves for internal combustion engines, especially those for aero engines and for the high-speed engines now so popular for motor cars. Noncorrosive valves and seats lengthen the time between regrindings and maintain unimpaired efficiency during operation.

What has really made the use of stainless steel for valves a success in aero engines is the security it gives during working because of the high strength at elevated temperatures. For such purposes the Derihon plant in Manchester supplied the Allies during the war 15,000 stainless steel airplane engine valves per week.

The automobile industry is leaning more and more toward the building of high output engines and to obtain this many English makers have fitted overhead valves. This arrangement has the serious disadvantages that a broken valve may fall into the compression chamber and break the piston and even the cylinder. Valve regrinding is also a lengthy and expensive operation on such an engine. Certain British firms using stainless steel valves guarantee 20,000 miles before it is necessary to regrind. Also the strength residing in this steel at high temperature permits the use of stronger springs and short valve stems.

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# Making Electric Manganese Steel

## Details of Modern Practice for Ingots—Less Loss of Manganese—What Advantages Are Claimed Over Open-Hearth Method

BY J. H. HRUSKA\*

**I**N the history of the metallurgical development of manganese steel, the general application of electric melting methods has resulted in an important improvement in the chemical as well as physical properties of this material.

Originally, the alloy steel manufacturers were strongly in favor of the generally used method of mixing low-carbon

Although many other specifications of the chemistry of high-manganese steels were introduced by the metal trade, most of the quality products of steel works producing this grade of steel may be ranged within these limits.

In order to avoid a rather tedious description of the metallurgical processes during the manufacture of high-grade manganese steel, a complete outline of a very satis-

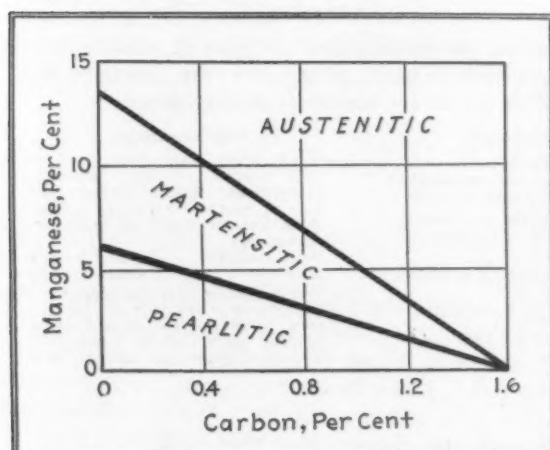


Fig. 1. (At Left)—Relationship Between Carbon and Manganese as Originally Observed and Determined by Guillet

steel with molten ferromanganese or else to risk a large percentage of the added manganese and melt both together. In either case great losses had to be expected. With the use of electrometallurgical melting and refining not only have these losses been eliminated, but a high-grade material has been obtained.

Of course, the melting and refining operations connected with the manufacture of electric manganese steel were higher in cost as compared with the older methods and it was for this fundamental reason that it took some pioneering to put electric manganese steel as a commercial product on the market.

### Preparation of the Molten Metal

In the successful manufacture of manganese steel of the so-called austenitic type, the important relationship between carbon and manganese—as originally observed and determined by Léon Guillet (Fig. 1)—and partly also between carbon, manganese and silicon has steadily to be held in mind. Thus a certain standard analysis or rather minimum content of the various constituents resulted more or less automatically. This generally accepted "specification" reads as follows:

	Per Cent
Carbon .....	less than 1.10
Manganese .....	11.50-13.50
Silicon .....	less than 0.60
Phosphorus .....	less than 0.065
Sulphur .....	less than 0.020

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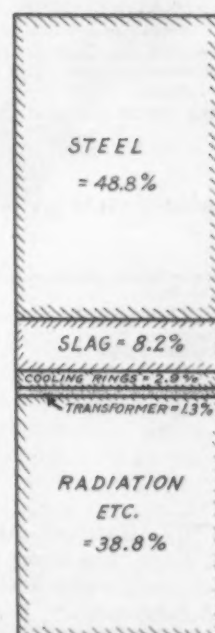


Fig. 2.—Heat Distribution Per Ton of Electric Manganese Steel

factory heat, made recently in a 7-ton basic Heroult furnace, is presented:

Charge used in making the heat:	Lb.
Carbon steel turnings .....	5,300
Carbon steel scrap .....	6,800
Initial metallic charge .....	12,100
Lime .....	160

### Record of the heat:

Time	Operation	Length of Operation
9.47	Charging started.	
10.10	Current on.	
12.05	75 lb. scale added.	
12.37	102 lb. lime added.	
12.51	No. 1 samples of steel and slag taken.	
1.00	Furnace tilted in order to skim off the greatest part of oxidizing slag.	
1.04	Current off and remainder of slag cleaned off the surface of the bath. Particular care taken in carrying out this operation.	
1.07	Slagging finished; current on again.	
	After slagging, successively added:	
	45 lb. lime	
	10 lb. fluorspar	
	770 lb. ferrosilicomanganese	
1.22	75 lb. of lime added.	
1.28	Four shovels of powdered ferrosilicon thrown over slag mixture.	
1.34	No. 2 samples taken, after a thorough stirring of the bath.	

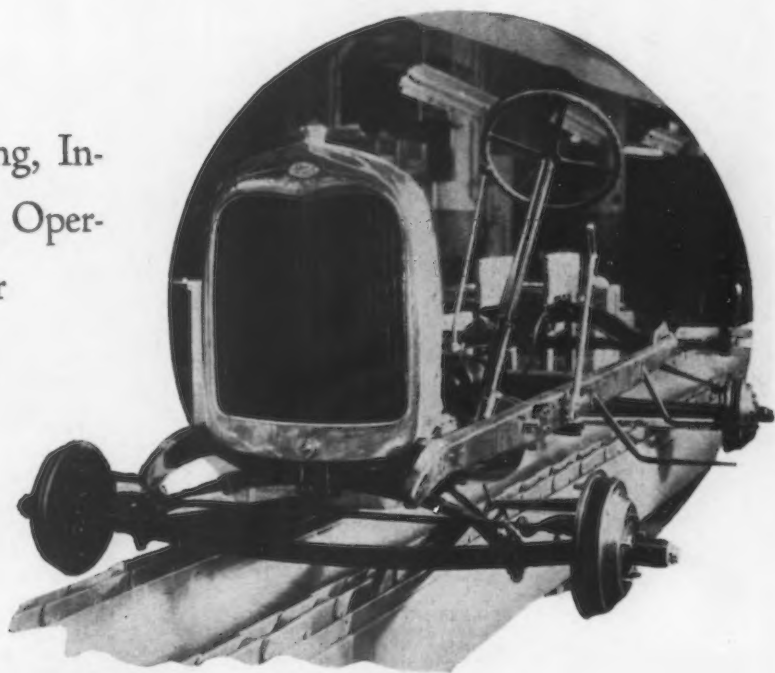




# How Ford Makes Front Axles

Methods of Forging and Forming, Including Bending and Stretching Operations for the Model-A Car

BY FAY LEONE FAUROT\*



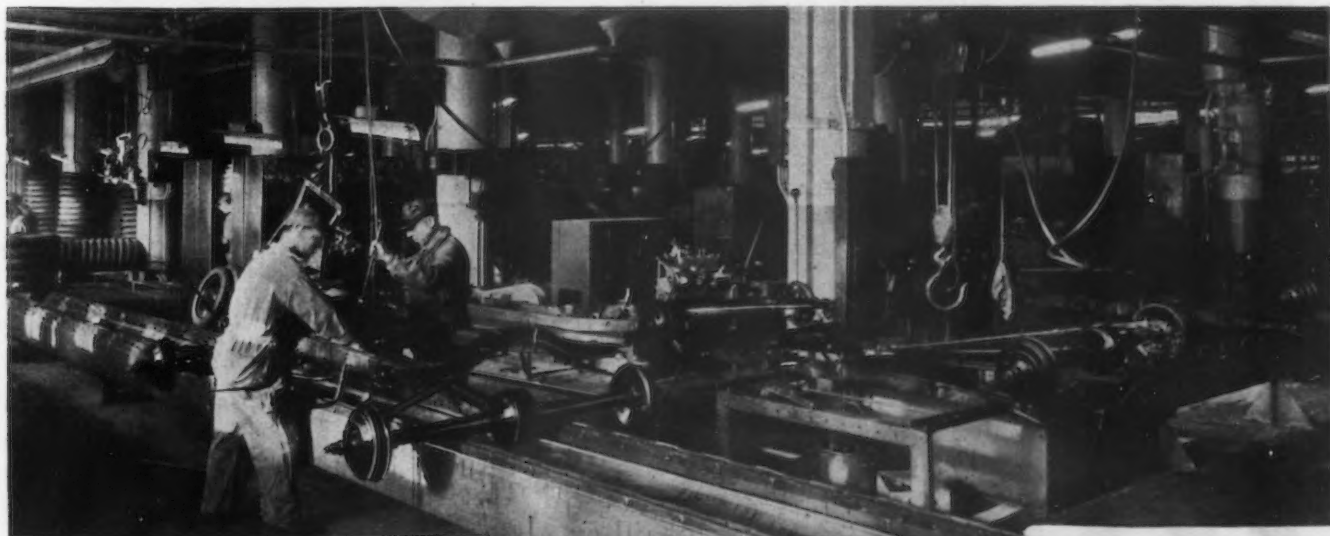
**F**ORGING and forming of the Ford Model-A front axle parts are interesting processes. Especially interesting is the manner in which the left-hand spindle arm is forged and shaped and the means used to bend the front axle proper and stretch it to its required length.

Stock for the front axle is first cut to length on a No. 2 Niles & Jones shear, which handles 300 pieces of stock an hour. A 4-in. Ajax forging machine is then used to upset and bend each end, this operation proceeding at the rate of

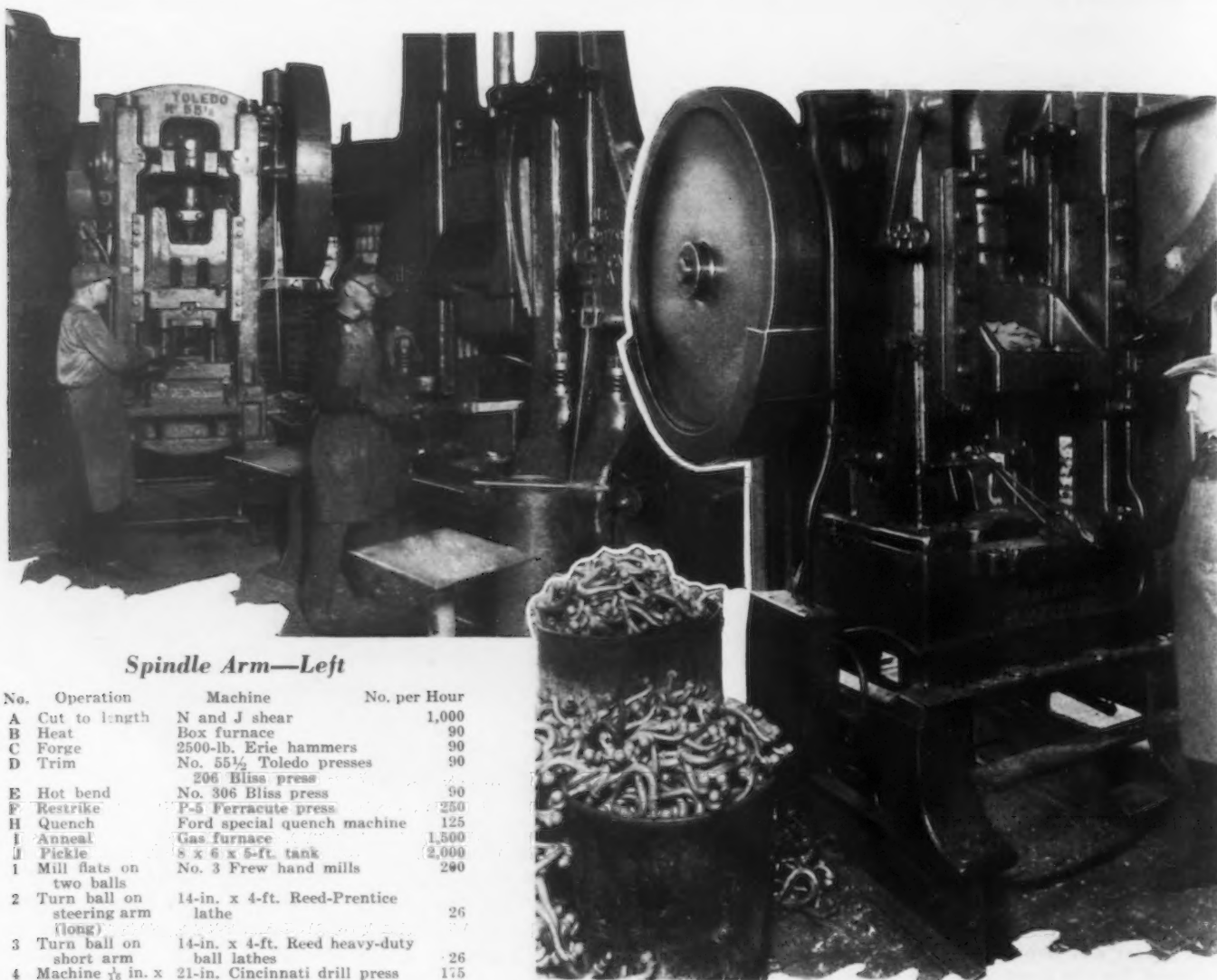
188 ends an hour. A 5000-lb. Erie hammer and a Bliss press are used for blocking, finishing and trimming each end, after which the forgings are given a bench inspection. The parts are then heated in the central section, put into a specially Ferracut press, shown in one photograph, where they are bent and stretched to proper length. This work proceeds also at the rate of 188 an hour.

They are then heated, quenched and annealed, after snagging on a No. 35 Ransom grinder. After a torture test on a 92½ Toledo press they are ground for a Brinell test,

\*Mechanical engineer, 420 Lexington Avenue, New York.



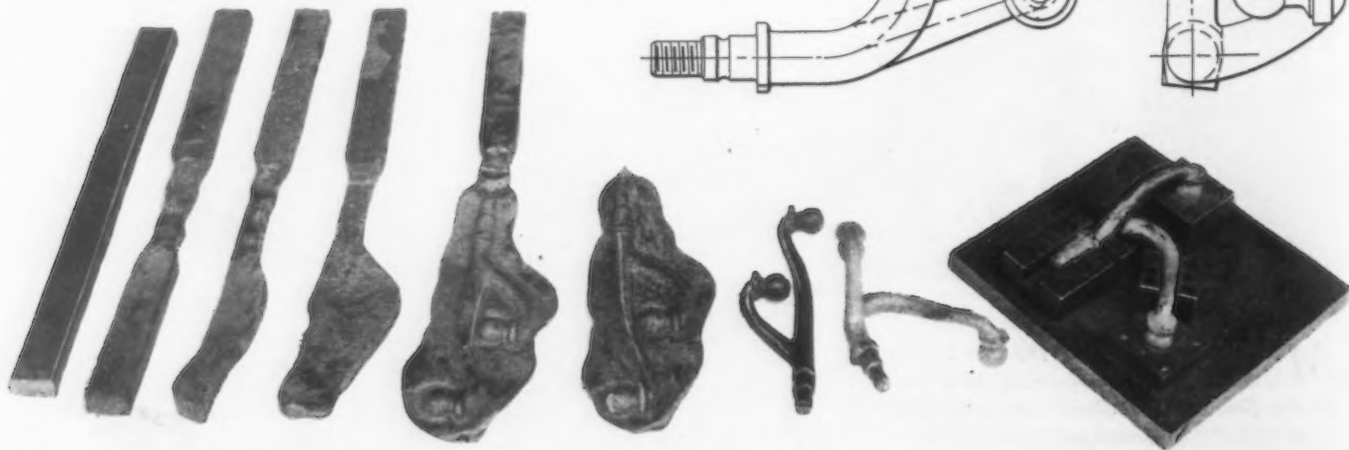
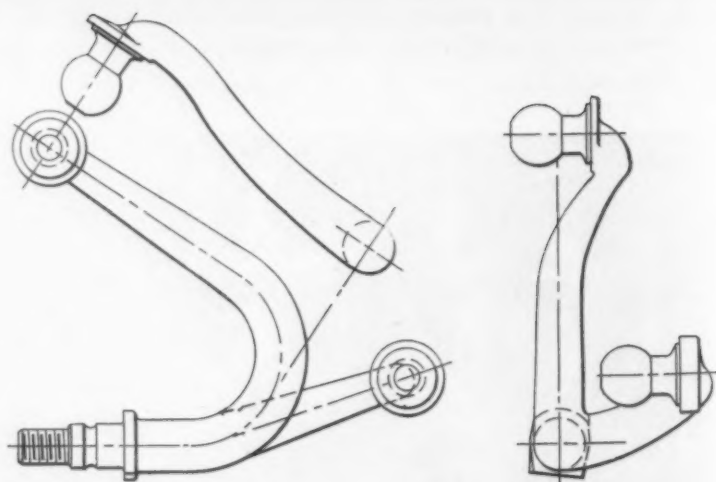
**M**OUNTING Axles on the Car Frame  
Just Before Transferring the Frame  
to the Start of the Final Assembly Line  
Conveyor



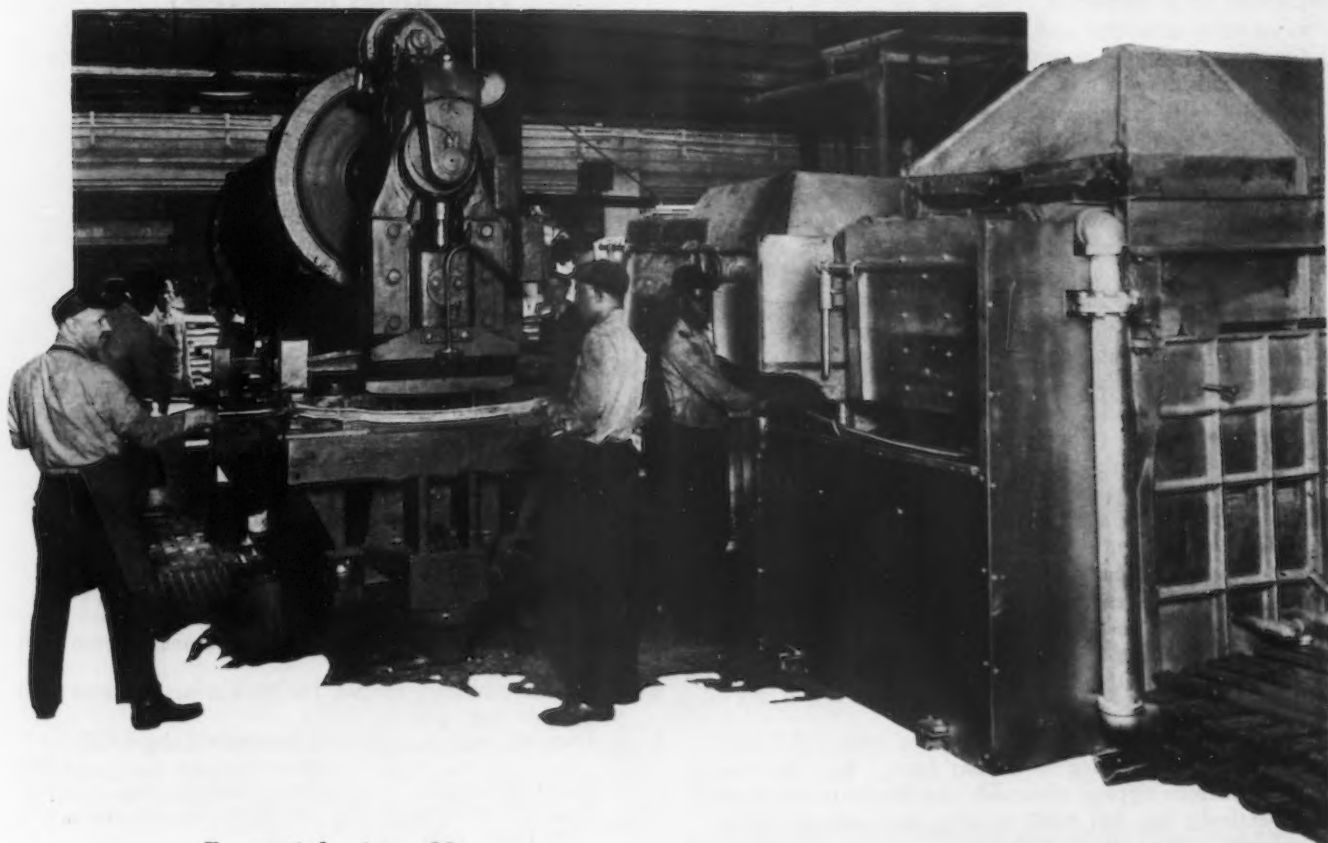
### Spindle Arm—Left

No.	Operation	Machine	No. per Hour
A	Cut to length	N and J shear	1,000
B	Heat	Box furnace	90
C	Forge	2500-lb. Erie hammers	90
D	Trim	No. 55½ Toledo presses	90
		206 Bliss press	
E	Hot bend	No. 306 Bliss press	90
F	Restrike	P-5 Ferracute press	250
H	Quench	Ford special quench machine	125
I	Anneal	Gas furnace	1,500
J	Pickle	8 x 6 x 5-ft. tank	2,000
1	Mill flats on two balls	No. 3 Frew hand mills	290
2	Turn ball on steering arm (long)	14-in. x 4-ft. Reed-Prentice lathe	26
3	Turn ball on short arm	14-in. x 4-ft. Reed heavy-duty ball lathes	26
4	Machine ½ in. x 1 in. shoulder	21-in. Cincinnati drill press	175
5	Mill flats to length on balls	No. 3 Frew hand mill	200
6	Center drill	Ford centering machine	300
7	Turn ¾ x ⅝ bearing	14-in. x 4-ft. Reed-Prentice lathe	40
8	Turn oil groove	14-in. x 6-ft. Reed-Prentice lathes	150
9	Mill 532/.534	5-in. Pratt & Whitney hand mills	225
10	Drill ⅝ in. hole in spindle arm left	No. 6-D Kent Acme drill, 6-spindle	300
11	Thread ⅝	Special Illinois threader	300
12	Straighten	P-4 Ferracute press and bench	150

**MAKING the Left-Hand Spindle Arm.** This is shown in drawing and in photographs. One view shows a Bliss press bending the steering knuckle; another shows an Erie hammer forging the steering spindle arm from a straight bar. Steps in the forging are shown below





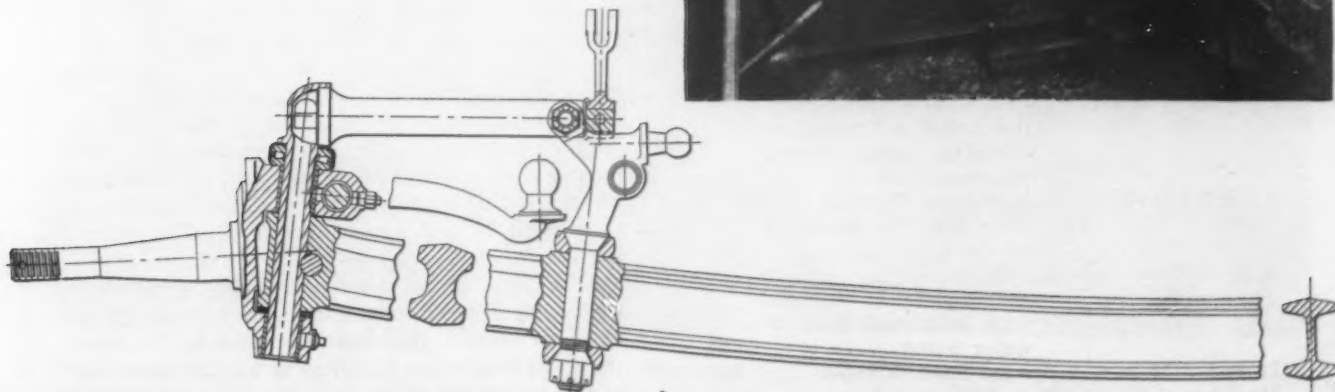


### Front Axle Assembly

No.	Operation	Machine
1	Put one front axle into vise.....	Bench fixture
2	Assemble oilers, top and bottom, in two spindles.....	Bench
3	Fit one r. h. and one l. h. spindle arm into one spindle each and put on nuts.....	Bench
4	Put in two steel and felt washers, one set on each side.....	Bench
5	Put on two spindle bearings.....	Bench
6	Put in spindle bolts, left and right.....	Bench
7	Put in two spindle bolt locking pins and nuts.....	Bench
8	Assemble one radius rod on axle.....	Bench
9	Assemble spring perches on front axle.....	Bench
10	Assemble one brake shaft assembly r. h. and l. h. onto front axle.....	Bench
11	Assemble brake assembly on axle putting cam end in spindle bolt housing first.....	Bench
12	Assemble spring and ball seat assembly in connecting rod and put in adjusting screw.....	Bench
13	Assemble connecting rod on spindle arm balls.....	Bench
14	Put on spindle nut.....	Bench
15	Paint one coat of Primer and bake one hour at 250° heat.	



**P**REPARATION and Assembly of Front Axle, Showing Forging of the Axle in an Erie Hammer and Bending of the Axle to Exact Finished Contour by Means of Special Dies. The heating oven appears at upper right. The drawing shows assembly of one axle



straightened in a Ferracut press, put through a pickling operation on a conveyor and finally given a bench inspection for cracks. They are then ready for machining.

A special Ingersoll milling machine handling 65 pieces an hour mills the spindle and spring perch bosses, after which a four-spindle Foote-Burt drill drills spindle and spring perch bosses and reams them at the rate of 40 an hour. Two 9/16-in. holes are then drilled and reamed, on a 21-in. single-spindle Cincinnati drill press. A similar machine takes care of the next two operations, which are the countersinking of four 11/16-in. and two 9/16-in. holes and the spot facing of two 9/16-in. holes. Finish milling of the spindle bosses is done on a No. 32 Kempsmith milling machine at the rate of 80 an hour. After this the axle receives one coat of paint and is dried in an oven at the rate of 400 an hour. The accompanying photographs show the dies, hammers and work at various stages of the forging operation.

The nine operations in the forging and forming of the left-hand spindle arm are graphically shown in a progress photograph. Until one actually sees the progressive steps whereby a straight bar of steel is forcibly cajoled into yielding this grotesque but most efficient form one can hardly believe that such a result is possible. Forged flat, the two arms are finally brought to their final shape by bending over a die in the Bliss press shown in another illustration.

Six actual operations and the machines upon which they are performed are detailed in tabular form. Two of these lists of operations appear alongside the illustrations showing respectively the left-hand spindle arm and the front axle assembly. The others follow:

#### Spindle Arm—Right

No.	Operation	Machine	No. Per Hour
A	Cut to length .....	H. & J. guillotine-type shear .....	1,000
B	Heat .....	Furnace .....	90
C	Forge .....	1000-lb. Erie hammers ....	90
D	Trim .....	No. 73½ Bliss press.....	90
E	Heat .....	Furnace .....	—
F	Quench .....	Ford special quenching machine .....	125
G	Anneal .....	Gas-fired furnace .....	1,500
H	Restrike .....	400-lb. Erie steam hammer	750
I	Pickle .....	8 x 6 x 5-ft. tank.....	2,000
1	Mill flat on ball ..	No. 3 Frew hand mill ....	300
2	Turn ball .....	14-in. x 4-ft. heavy-duty ball lathe, two spindle speeds, 75 and 250 r.p.m. No tail-stock or feed, individual water pump, 12-in. air cylinder .....	26
2-A	Machine 1/16 x 1-in. shoulder .....	21-in. Cincinnati drill press, wet table .....	175
3	Mill flats to length on ball .....	Potter & Johnson shaver, using and mill .....	300
4	Center drill .....	Ford centering machine, Ford design—single end.	300
5	Turn ¾ x 9/16-in. bearing .....	14-in. x 4½-ft. Reed-Prentice lathe, wet table, tail-stock power, individual pump .....	40
6	Turn oil groove ...	14-in. x 6-ft. Reed-Prentice lathe, wet table, individual pump—spring tail-stock .....	150
7	Mill 0.532/0.534 in.	5-in. Pratt & Whitney hand mill; No. 1½ Brown & Sharpe mill .....	225
8	Drill 5/32-in. hole in spindle arm ..	6-D Kent Acme 6-spindle drill, wet table, equipped with individual B. & S. water pump .....	300
9	Thread 9/16-in. ..	Special Ford threader ....	300
10	Straighten .....	P-4 Ferracut press—standard and bench ....	150

#### Front Radius Rod Assembly

No.	Operation	Machine	No. Per Hour
1	Weld one Ford part (A-3412 foot) and Ford part A-3411	B-6 Winfield tube welders.	125
2	Trim flash on foot and tube assembly	CA-4 Ferracut punch press .....	250
3	Weld one tube and foot assembly to Ford part A-3409-B yoke .....	100-kva. flat-top welders..	100
4	Trim flash from one tube, yoke and foot assembly ..	CA-4 Ferracut punch presses .....	85
5	Weld one tube and foot assembly to tube, foot and yoke assembly ..	100-kva. flat-top welders..	100
6	Remove flash .....	CA-4 Ferracut punch press .....	185

#### Front Spindle Assembly

No.	Operation	Machine	No. Per Hour
1	Press bushing in one lug .....	No. DG 53 Ferracut press	300
2	Press bushing in other lug .....	No. DG 53 Ferracut press	300
3	Burr oil hole .....	14-in. 3-spindle Leland Gifford drill .....	1,000
4	Rough line ream	Cincinnati drill presses....	300
5	Broach and burnish 13/16-in. hole to size .....	No. DG 53 Ferracut press	400
6	Burr .....	Bench .....	—

#### Front Spring Perch Assembly

No.	Operation	Machine	No. Per Hour
1	Press front spring perch bush on front spring perch	P-3 Ferracut press; PG-3 upright punch press ....	500
2	Burr .....	Allen single-spindle drill press; No. 1 Allen sensitive drill press .....	375
3	Thread .....	Special Ford threaders; Special threading machine .....	200

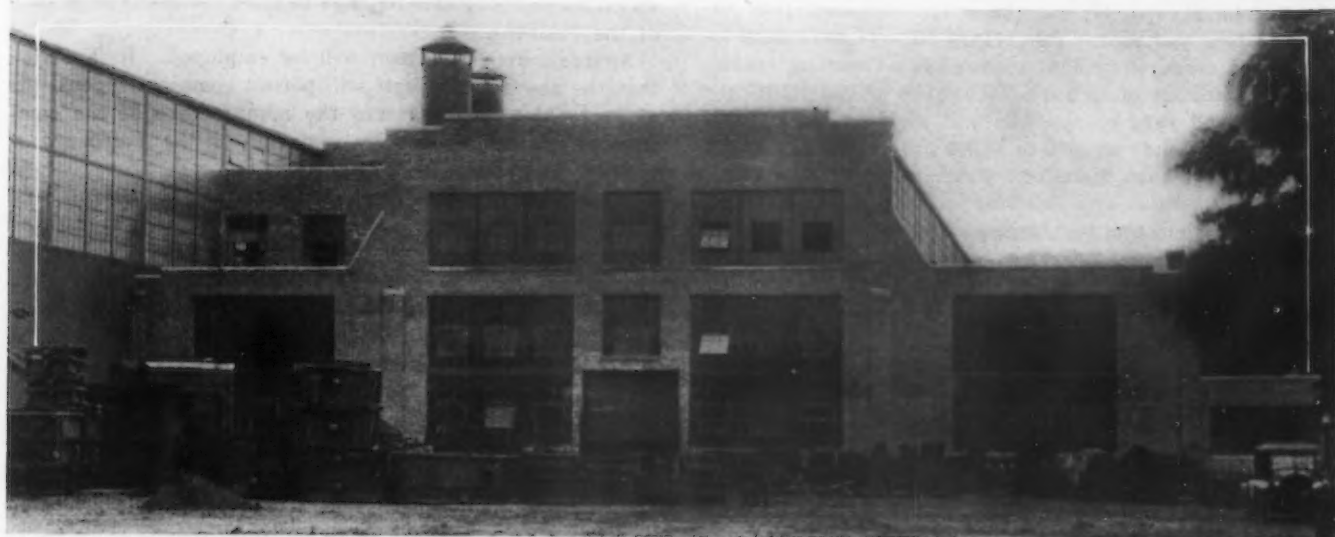
#### Seams in Forgings Defined

A special committee was appointed in 1926 by the American Society for Testing Materials to consider whether it is possible to prepare a definition of "seams" and "injuriously defects" so as to be available for the interpretation of these words when they appear in specifications for forgings. After considering the wide variety in the design and uses for forgings, it was voted by the committee at its last meeting that the definitions already proposed are as good as can be formulated. These are as follows:

A seam is a separation of the metal as determined by splitting of a chip taken at right angles to or parallel with the direction of the seam.

Seams or other surface imperfections in finished forgings will not be considered injurious if they can be removed by machining the surface of the forging to a depth of 1/64 in. for each inch in diameter of the forging.

The depth of the imperfections may be developed by taking several light cuts with a chipping tool until the deepest chip does not break at the line of the imperfection, or by filing or machining at right angles to the line of the imperfection until its depth has been established.



## Completes New Foundry for Compressor and Engine Gray Iron Castings

**T**HE Chicago Pneumatic Tool Co. has completed a new foundry at Franklin, Pa., for the production of gray iron castings for the air compressors and engines manufactured at the company's Franklin works. A storage shed measuring 60 x 330 ft. has also been erected. The new foundry building is 130 ft. wide and 220 ft. long and is ad-

jacent to the main plant, which consists of power house, machine shop, erecting floors, pattern shop, offices and shipping platforms.

The buildings and foundry equipment, which is of modern design throughout, represents an investment of more than \$400,000. The equipment includes two cupolas, one of 16



*Equipment of the New Chicago Pneumatic Tool Company's Foundry is of Modern Design Throughout. It includes two cupolas, several molding machines and automatic hopper type sand handling units. The type of building construction may be noted from exterior view above*



tons per hour capacity and the other with half that capacity, 8 tons per hour. Two rotary blowers have been installed and crane equipment includes five traveling cranes, three of which are of 15 ton capacity, one of 10 ton and one of 5 tons, and yard cranes. Several molding machines of various capacities from 1000 to 20,000 lb., and including four squeezers, have been installed. Other major equipment includes three hopper-type automatic sand handling units, mold drying ovens and two large and four small core ovens. A daily capacity of 30 tons is provided, with ample pro-

vision for doubling this tonnage to meet the needs of growth of the business.

Approximately 225 men will be employed. It is stated that the new foundry unit will permit complete supervision of every step entering into the manufacture of the company's products, from raw material to the finished machines.

The company has other large plants at Detroit and Cleveland, where pneumatic and electric tools are manufactured.

## Use Foreign Structural Steel Warily

### Method of Manufacture and Lack of Usual Tests Cast Suspicion on Uniformity and Acceptability for Important Structures

A WARNING has been issued by the American Institute of Steel Construction, through its executive director, Charles F. Abbott, that the structural steel now being imported into the United States has not been made under the specifications customarily imposed on American steel. Consequently it should be used with caution, and placed into important structures only after careful and systematic testing indicates that its quality is uniform and better than the minimum limits of strength assumed by the designing engineer.

While taking the stand that a technical association such as the institute is not concerned in political matters, Mr. Abbott's statement points out that his organization is vitally interested in the quality of the material which goes into construction work. The institute has evolved standard specifications for steel construction work which have been adopted by practically every city in the United States. These standards require that the steel measure up to the high quality specified by the American Society for Testing Materials.

#### Imported Structural Steel Mostly Bessemer

"If the material passes these tests it may be made by either the Bessemer or the open-hearth process," the statement continues. "Bessemer steel is not so uniform in quality and we realize that only when the steel is made by the open-hearth process can we be fully assured that it will meet the high standards required.

"Inasmuch as most of the imported structural steel is produced by the Bessemer process a word of caution is issued to building owners in the United States. Foreign steel produced by the Bessemer process should be subjected to the most rigid tests before it is incorporated in any American structure. Aside from the chemical structure of the foreign material it not infrequently happens that its geometric proportions also make it inferior for American practice. Our 12-inch beams have a certain desirable flange width, and their webs a specific thickness. On the other hand, the European product has less metal in the flange, which makes it easier to roll but less efficient per pound of steel. In the United States a uniform quality of steel is used and, no matter what mill may make the beam, it is produced according to known standard specifications. It is inspected before it leaves the mill to determine whether or not it meets the necessary requirements.

"It will be wise for steel contractors not to look for price savings in the purchase of foreign-made structural steel, for in most cases nothing is gained thereby. Should a consignment of steel reach here and be found impractical for use, much time is lost by replacing that shipment by the domestic product. Word comes from Miami, Fla., that construction work on the Twelfth Avenue bridge is held up because the steel was purchased in Europe. Owing to a

strike, the shipment is still held in a Belgian port. The contractors would have completed their work May 15 but for this delay in receiving the steel.

"Not all losses are incident to delays in delivery, when a contract is based upon foreign steel. Some contracts in Brooklyn, N. Y., were held up because the foreign steel did not measure up to specifications and American material was substituted. Albert E. Kleinert, building superintendent of Brooklyn, states that he has found imported structural steel 10 per cent weaker than domestic structural steel. Europe does not find it necessary to make structural steel to American standards, for they usually construct buildings not over five or six stories in height, where strength of material is not so important.

#### Foreign Mill Tests and Markings Inadequate

"Domestic steel manufacturers make and record the tests made on each melt, which record can be compared and checked against the finished steel from each melt. It is generally impracticable to obtain such a record on steel imported from abroad. Tests made after its delivery are inadequate. In May of this year certain steel reported to have been imported was tested at Columbia University. The results of that test were not conclusive, and were so reported by building inspectors, for they established only the value of the pieces actually tested and failed to connect them with all the imported steel in question.

"The American Institute of Steel Construction, Inc., is not opposed to imported steel because it is foreign made, but it is opposed to anything that tends to lower American standards. If foreign steel is to be imported for structures here it should be subjected to the same rigid tests at the mill to which we subject our domestic product, and when it fails to meet those requirements its use in buildings and bridges should be prohibited."

The effect of nutritious food upon the health and consequent efficiency of employees and the inadequacy of commercial facilities for the needs of many industrial establishments has led to the installation by many companies of industrial lunch rooms, the problems of which are amply set forth in a booklet issued by the National Industrial Conference Board, Inc., New York. Types and physical characteristics of lunch rooms are fully covered together with their management and cost. In summing up it is brought out that "the most popular type of lunch room for all types of plants is the cafeteria, which requires managerial skill and a considerable outlay of money for its operation. As a result a number of companies that find it urgent to install luncheon facilities, but impractical to engage in a program of management and finance foreign to their business, deem it advisable to turn the management of their cafeterias over to concessionaires."

## Cutting Up Massive Scrap



**O**XY-ACETYLENE cutting is used so frequently and to such good effect in dismantling and wrecking operations that it now excites little comment. Such equipment is also used to advantage in scrap yards to supplement the drop ball and the alligator shear in the job of reducing ungainly or massive pieces of cast iron or steel to charging box size.

*Photographs by courtesy of The Linde Air Products Co.*

**G**ASES may be obtained from individual cylinders of compressed gases, or from a central station where the oxygen and acetylene are generated and piped to various outlets. Frequently, portable acetylene generators are used to advantage. As shown in the view, a small generator, rated at 45 cu. ft. of acetylene an hour, can produce enough gas to cut through a cast iron fly-wheel rim, 3¼ in. by 24 in. with a 6½ in. web.



**B**ULKY and intricate material, ranging from a steel ship down to a locomotive, offers no particular difficulty to a scrap yard properly equipped with blowpipes and handling equipment. A double walled firebox, with numberless rivets and stays, would probably cost more than the old material is worth to dismantle in any other way than by gas cutting.

**H**EAVER cutting on cast iron may be done by cutting half way through from one side, then turning the piece over and completing the job. The view shows a block 24 in. thick being reduced to smaller pieces in this manner by a workman under close supervision of another, skilled in cast iron cutting.

\* \* \*

**P**LAIN carbon and alloy steel can be cut with an oxy-acetylene flame much more readily than cast iron. Twelve-inch armor plate may be trimmed to shape or cut into small section by a special blowpipe mounted on a simple traversing mechanism, driven by a long screw.



# Leaves from the Diary of a Foundry Apprentice

BY H. A. FROMMELT\*

**March 4.**—Only here a month and a half, but I feel like an old-timer; not a bit sore, fit as a fiddle and liking this game better every day. Jack says you get to feel like the papa of a new born baby, without the after effects of doctor's bills, every time you see yourself as the "daddy" of a nice, bright, bouncer of a steel casting. "Jack has got right," as the Dutchman on our scenic railway would say. (Until I rode on the crane in our bay I wondered why they called it the "scenic railway"; now I know.)

**March 10.**—Received a schedule of "Related Studies" for the full four years. With the 4 hr. per week of home study, we "go to school" in actual time more than one year—1600 hr. to be exact. They spoke of this apprenticeship as "more an education than just a job" at the first interview. I was reminded of it yesterday while looking over a circular on apprenticeship that the company publishes.—That reminds me, must give that to Andy C., who is interested in this apprenticeship business.—Well we'll see. I'm going to copy the schedule here and check it off as they hand it out to us piece-meal.

Available Time:	Hr.
200 hr. per year obligatory on company time, four years .....	800
200 hr. per year prescribed home study, four years..	800
Total available for related studies.....	1600
Time Required for:	
Related trade studies.....	891
Average number of unit lessons.....	54
Average time to complete each.....	16.5
Inspection trips (four trips per year, four hr. each) ..	64
Technical lectures (0.5 hr. each four hour period, or 25 hr. per year).....	100
Non-technical lectures (same as technical).....	100
Collateral trade and technical reading and study....	100
Advanced studies (junior foremanship).....	345
Technical Lectures (Illustrated)	
1. The Making of Iron and Steel, six half-hour lectures ..	3
2. Elementary Metallurgy, twelve half-hour lectures ..	6
3. Heat Treating, twelve half-hour lectures.....	6
4. Alloy Steels, six half-hour lectures.....	3
5. Company Products, twelve half-hour lectures.....	6
6. Modern Machine Shop Practice, twelve half-hour lectures .....	6
7. Modern Pattern Shop Practice, twelve half-hour lectures .....	6
8. Modern Foundry Practice, twelve half-hour lectures .....	6
9. Modern Industrial Buildings, six half-hour lectures ..	3
10. Materials Handling and Equipment, twelve half-hour lectures .....	6
11. Economics of Mass Production, six half-hour lectures .....	3
12. Modern Management, twelve half-hour lectures....	6
13. Modern Foundry Sand Control, six half-hour lectures .....	3
14. Open-Hearth and Electric Steel Castings, twelve half-hour lectures.....	6
15. Power in Modern Manufacturing, twelve half-hour lectures .....	6
16. The Specialty Steel Castings Field, twelve half-hour lectures .....	6
17. Steel Castings, twelve half-hour lectures.....	6
18. Production Schedules and the Customer, six half-hour lectures .....	3
19. Financing Modern Business, twelve half-hour lectures .....	6
20. Miscellaneous, twelve half-hour lectures.....	6
Total .....	105

\*Consultant, St. Louis.

## Non-Technical Lectures. The Apprentice as:

1. Learner (Attitude in shop toward fellow apprentices, journeymen, foremen, et al.), 16 lectures, one hr. each.....	16
2. Employee (As a producer, manufacturing costs, etc.) .....	16
3. Member of Community (Civic and social obligations, home owning, etc.), 16 lectures.....	16
4. Member of Industrial Society (Labor policies, organizations, etc.).....	16
5. As An Individual (Duties to self, safety, hygiene, etc.) .....	16
6. Future Journeyman (Opportunities, obligations, etc.) .....	16
Grand Total.....	96

Can you beat that! I never thought a hard-boiled foundry outfit would get down to figuring out the number of hours it took to complete a lesson. Supervisor Haney is certainly some generalissimo. He explained the course of studies in a general way and said that I would undoubtedly become better acquainted with it as time went on. I'll say I will, if I know anything about the way they run things around here. Last week a probationer was let out because he failed to keep up with his related studies. Mr. Haney explained that "related studies" mean studies related to the work we are doing in the shop. (Phew! that's the longest entry I've made in you yet, Diary. old dear.)

**March 15.**—Just returned from my first inspection trip. We visited our own machine and erecting shops. Did I say visit? It was harder than a shopping trip on bargain day that mother talks about. These are not inspection trips; they're detection trips—detect all the information that's lying around loose in 4 hr. and then write a report of 500 words to be handed in the following week. No foolin' about this. I thought it would be a little half holiday, but no such luck in an apprentice's life around here. Well, at any rate, learned all about the company's product, where our castings go and what they have to contend with in the machine shop. Scraping bearings on a big turbo-generator is some job. Give me the foundry any day. I don't like that close work. Setting small cores is bad enough.

**March 22.**—Thought I knew something of our product after that inspection trip. But after Mr. Haney quizzed me I decided to get a catalog and make some detection trips of my own.

**March 30.**—Young Delaney was made one of the chief foundry inspectors today. Graduated only a year and a half ago. Jack says he was not the brightest in the group, but very dependable and a chap who gets along with everybody. That seems to be most of an inspector's life, anyway.

**April 10.**—It's time I got caught up on some of these things I have been wanting to know about, for instance, ladles, stoppers, heads and risers, carbon and silicon, sulphur and phosphorus, silica wash, etc. I'll make a schedule of my own and check them as I get the answers.

**April 15.**—A shifted core! Who would have thought that a core had any shift left in it after a mold was nicely closed and all clamped down. One of my first core jobs—and of course the detective department—by the way, it was that Delaney, just turned inspector, who did the snooping—traced it to me and I couldn't disown the brat. There it was just like it had a floating rib. Naturally it had to be scrapped. Well, experience is a dear teacher—for the company in this case.

**April 16.**—The foreman of the training bay, Mr. Howard, demonstrated just how a core must be set so that it won't get St. Vitus dance when the mold is poured. I never realized that liquid metal pressed so hard against all parts of the mold, but it seems all so easy now that it has been explained. And me thinking I was ready to be promoted to other work!

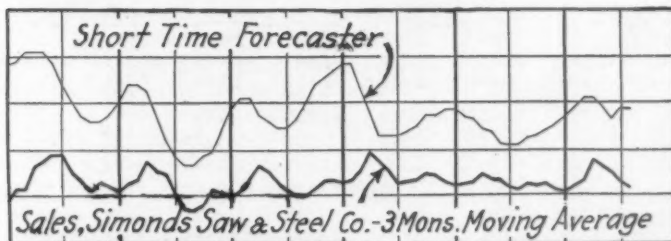


# A Short-Time Business Forecaster

Unfilled Orders of Steel Corporation and Building Contracts Presage  
General Trend, Says Alvan T. Simonds

A SHORT-TIME forecaster of business is described in the September issue of *Looking Ahead* by Alvan T. Simonds, president Simonds Saw & Steel Co., Fitchburg, Mass. This forecaster is based on prospective operations in the steel and building industries as indicated by unfilled orders of the Steel Corporation and awards of building contracts. On request Mr. Simonds will forward a detailed statement to any reader showing how the forecaster has been worked out.

This type of forecaster contrasts with one covering long-time movements outlined in previous issues of *Looking Ahead*. It was pointed out that, since the war, business has moved in short cycles of about three years in length; that is, with the peaks about three years apart and the lowest points about three years apart. Downward movements in



Sales of the Company Have Followed the Indicator, with Lag of Only a Month or Two

business, according to this analysis, have been preceded by rising money rates and upward movements by declining money rates. Mr. Simonds' article in the September issue of *Looking Ahead* follows in abstract.

From the fall of 1926 to the end of 1927, money rates moved down for about 15 months. If the regular sequence since the war is continued, the general movement of business will now be upward to a peak in 1929. Since the beginning of 1928, money rates have moved up sharply, and if money rates continue to move up for a few months more and the regular sequence since the war occurs, business will move down from the peak in 1929 for a time approximately equal in length to that of the upward movement in money rates. How much longer money rates may continue to move up is decidedly uncertain. We have called attention to the fact that the common error in comparing money rates with business movements is to expect that with a major change in the direction of money rates a change upward or downward immediately takes place in the movement of business. As a matter of fact, since the war the change has not begun until 12 to 15 months later than the turning point in money rates.

## Election May Alter Business Trend

Everyone realizes that there is now an added complication that may decidedly affect the state of business in the United States in the fall of 1928 and for some months following. This is the presidential election. There are many who believe that the election of one of the candidates might result in a depressing influence upon business, severe enough to modify or even decidedly change what would have been its normal and regular movement. For this reason in this issue of *Looking Ahead* we are showing a short-time forecaster which we have found reliable in forecasting the sales of the Simonds Saw & Steel Co. Any favorable or unfavorable influence arising out of the Presidential election will show itself in this forecaster before it

does in the movement of general business and before it does in the sales of Simonds Saw & Steel Co. or those of other companies dependent upon general industrial activity. As we have stated before, the sales of the Simonds Saw & Steel Co. run practically parallel to general business and, even with less variation, parallel to the volume of manufacture in the United States. Anyone interested in forecasting the sales of a particular business can, of course, readily chart the sales and compare their movements with the movements of the short-time forecaster shown in this issue.

## Prosperity Depends on Three Industries

Good business and widespread prosperity are assured so long as three great industries are growing in activity and in volume. These are the steel, the building, and the automobile businesses. If on the day that this article is being prepared, we could know just how much business is ahead of the steel industry for three or four months, and for the same length of time how much business is ahead of the building industry and how much is ahead of the automobile industry, we could know very accurately what is ahead of our business for that time. We are not able to get the amount of production ahead in the automobile industry. We can however get the figures for the unfilled orders of the United States Steel Corporation, which is so large a factor in the steel industry, and we have reports of building contracts awarded in 37 States. On the tenth of every month, therefore, we know quite accurately just how much work lies immediately ahead of two of the three greatest manufacturing industries in the United States.

The chart shows combined in the forecaster the movement in *work ahead* in steel production and in building. Changes in direction of this movement are regularly announced by a hesitation in the index for a month or longer; that is, instead of moving up or down, it moves horizontally. If it is going up and the horizontal movement takes place, it indicates that it is to be followed by a downward movement. If the movement is downward and the horizontal movement takes place, it indicates that it is to be followed by an upward movement. A study of the chart will show that this forecaster gives us advance notice of major changes up or down in the sales of the Simonds Saw & Steel Co.

## French Steel Manufacturers

The annual directory of steel manufacturers of France, the *Annuaire* for 1927-1928, is of the same bulky proportions as its predecessors, a book about 5 x 8½ in. in size of page but near 2½ in. thick, having some 1400 pages. Over one-third of the book comprises advertisements of the supply and construction trades serving the steel industry. These are classified into 28 divisions, so that there is in fact a double directory, one of the steel producers and one of the supply industries, so to speak, those which supply the raw materials, build the plants and provide rolling machinery, furnaces, prime movers, material handling machinery and the like. The directory proper, besides an alphabetical arrangement of plants, gives a grouping according to products and also according to regions. Indexes include names of individuals mentioned, as well as the firm names, both being given in regional groups and alphabetically. The *Annuaire* is published by the Comité des Forges de France, 7 Rue de Madrid, Paris (VIII), France.

## Where Steel Exports Went in First Half-Year

Canada Took 284,661 Tons of Nine Leading Items—Japan Retains Second Position with 78,120 Tons, Followed by Argentina, 39,387 Tons; China, 30,179 Tons; Mexico, 26,500 Tons; Brazil, 24,493 Tons

### Exports from United States, by Countries of Destination

(In Gross Tons)

	Steel Plates				Galvanized Sheets				Black Steel Sheets			
	June		Six Months Ended June		June		Six Months Ended June		June		Six Months Ended June	
	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927
Total	14,529	10,126	71,726	70,352	10,420	14,108	75,076	85,955	19,223	12,136	90,311	90,229
Canada	12,202	8,613	60,584	55,991	3,185	4,603	17,132	20,578	9,767	6,963	40,500	39,223
Japan	380	162	878	547	110	5	1,096	1,359	7,207	1,997	37,430	37,551
Cuba	64	51	356	225	549	1,016	2,721	6,694	272	100	1,101	514
Philippine Islands	368	237	1,748	360	168	1,534	11,446	8,499	306	327	1,399	1,411
Mexico	132	47	373	468	730	592	4,085	3,995	275	146	1,169	894
Argentina					1,000	1,428	4,149	5,128	195	197	923	1,019
Chile						41		741	45	333	151	940
Colombia					768	966	3,607	4,154	25	26	281	265

	Steel Rails				Barbed Wire				Plain and Galvanized Wire			
	June		Six Months Ended June		June		Six Months Ended June		June		Six Months Ended June	
	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927
Total	12,483	11,601	109,586	97,917	7,000	5,004	38,427	23,249	4,660	2,740	23,701	15,903
Canada	2,061	3,652	10,557	14,368	757	498	2,493	2,510	1,277	1,120	7,969	7,904
Japan	3,585	847	9,718	20,897					421		651	503
Cuba	180	1,631	1,461	8,420	661	349	2,555	1,112	415	136	614	604
Philippine Islands	30	533	3,925	2,074	184	288	799	1,025	95	8	145	153
Mexico	673	518	3,284	3,452	493	510	3,541	2,336	283	481	1,151	1,771
Argentina	883	178	2,776	199	1,981	563	8,869	2,353	1,633	323	4,699	557
Chile		298	20,514	440				18				
Colombia	2,093		9,200	527	556	242	2,079	1,886				
Brazil	12	573	13,581	14,847	546	1,052	8,656	4,837	135	33	535	1,530
China			21,028	13,214								

	Tin Plate				Steel Bars				Heavy Plain Structural Material			
	June		Six Months Ended June		June		Six Months Ended June		June		Six Months Ended June	
	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927	1928	1927
Total	22,276	18,543	125,099	152,767	13,816	6,874	70,768	56,576	19,356	11,744	89,873	66,222
Canada	5,558	4,188	23,387	24,950	9,139	4,723	46,547	34,735	17,377	9,566	75,492	53,905
Japan	3,195	2,707	26,683	29,998	166	79	480	589	5	574	1,184	2,025
Cuba	327	740	2,384	2,391	229	132	2,525	970	421	279	2,299	3,060
Mexico	1,179	1,250	6,786	6,589	56	44	374	538	130	120	603	400
Argentina	2,456	2,622	10,255	24,063					17	33	195	169
Chile	308	251	1,740	2,333					236	1,083	1,895	1,759
Brazil	90	1,007	1,721	6,673								
China	2,945	1,385	9,151	11,706								
British India	17		3,491	3,369								
United Kingdom			169	3,983	1,336	456	7,934	8,630				
Italy	651		6,694									

### Destination of All Iron and Steel Exports from the United States

(In Gross Tons)

Country of Destination	June, 1928	January through June 1928		Country of Destination	June, 1928	January through June 1928	
		1928	1927			1928	1927
North and Central America and West Indies	124,397	650,589	558,960	Italy	13,462	44,101	25,792
Canada and Newfoundland	100,855	535,178	433,264	Netherlands	182	1,333	1,712
Cuba	5,344	31,235	41,694	Russia	167	1,569	2,129
Mexico	7,973	39,798	44,690	United Kingdom	4,951	26,454	36,842
Guatemala	538	5,835	4,360	Other Europe	21,173	64,606	16,993
Panama	1,447	8,508	9,495	Far East	58,731	330,989	286,613
Salvador	669	1,886	2,671	British Malaya	133	3,414	5,662
British West Indies	1,012	4,368	7,698	China	6,869	57,535	32,804
Other West Indies	4,584	15,035	8,475	Dutch East Indies	2,916	14,051	20,128
Other Central America	1,975	8,746	6,613	India and Ceylon	1,368	13,562	14,935
South America	35,452	219,525	186,714	Japan and Chosen	40,387	181,572	148,402
Argentina	11,830	51,199	42,629	Kwangtung	76	2,981	15,144
Brazil	1,731	41,408	41,287	Philippine Islands	3,256	44,035	26,059
Chile	1,978	36,135	15,339	Australia	1,594	7,585	15,499
Colombia	5,689	35,206	31,368	New Zealand	95	1,047	678
Peru	2,332	13,388	17,302	Other Asia and Far East	2,037	5,207	7,302
Uruguay	1,427	5,084	6,846	Africa	1,644	7,905	10,476
Venezuela	10,167	33,970	30,556	British South Africa	688	3,481	4,593
Other South America	297	3,135	1,387	Egypt	627	3,083	2,239
Europe	41,828	149,734	90,664	Mozambique	159	479	3,099
Belgium	893	7,297	1,913	Other Africa	170	862	545
France	537	2,506	3,131	Total	262,052	1,358,742	1,133,427
Greece	463	1,868	2,152				



## Gas Producer Arranged for Full Mechanical Operation

**I**NCREASED gas making capacity and lower power, steam and water consumption are claimed for a new gas producer, designated as the type SB, which has been brought out by R. D. Wood & Co., 400 Chestnut Street, Philadelphia. The equipment operates on the same principle as the company's "heavy-duty" gas producer and is arranged for full mechanical operation, from the feeding of the coal to the removal of the ashes.

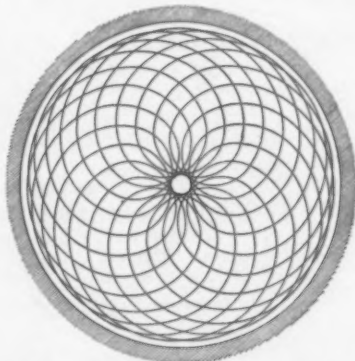
Arrangement of the machine may be noted from the accompanying illustrations. The fuel bed is agitated positively by means of a straight poker bar, which can be replaced conveniently. The mechanical coal feeder has no metal-to-metal contact between the stationary housing and the multiple pocket drum, which construction is emphasized as markedly reducing wear. Gas leakage between the stationary and moving member is prevented by a water seal.

The revolving ash pan is supported by three accessible conical rollers and rotates at the same speed as the producer shell, which arrangement is intended to prevent grinding of the ashes and subsequent increased resis-

porting construction of the producer as a whole, permitting of installation independently of the producer building, is another feature emphasized. Three columns carry the conical shell supporting rollers and the horizontal thrust rollers. The top plate, which is water cooled, is of steel plate construction heavily reinforced by structural shapes and provided with checkered cover plates. The foundation for the producer, of simple layout, requires approximately 15 cu. yd. of concrete.

### Data from Mill Installation

The following operating data, furnished by the Wood company, is from a steel mill installation. The coal gasified is Lincoln Gas Coal Co., egg and nut "Pittsburgh vein" of the following analysis: Moisture, 1.38 per cent; volatile matter, 38.40; fixed car-



*Agitation of the Fuel Bed During Six Revolutions Is Shown in Diagram Above*

bon, 55.90; sulphur, 2.16, and ash, 5.70 per cent. The B.t.u. per lb. are 13,580 and the fusing point of the ash is 2200 deg. Fahr.

Rate of gasification, depending upon the demand of the heating furnaces, varied from 3750 to 5800 lb. per hr. or from 47.8 to 73.8 lb. of coal per sq. ft. of fuel bed area. Gas produced from this coal was of uniform quality and averaged 162.3 B.t.u. (low value at 62 deg. Fahr.) per cu. ft. containing 46.5 per cent combustibles. The average gas analysis is given at: CO<sub>2</sub>, 5.8 per cent; CO, 26.2; CH<sub>4</sub>, 3.8; C<sub>2</sub>H<sub>4</sub>, 0.8; H<sub>2</sub>, 15.7; O<sub>2</sub>, 0.2, and N, 47.5 per cent.

The following analysis of the producer ash is offered by the company as indicating how thoroughly the coal is converted into gas, the carbon content being only 0.355 per cent of the total carbon contained in the coal as charged into the producer. The average ash analysis is: Silica, 43.10 per cent; aluminum, oxide, 25.95; ferric oxide, 23.35; sulphur, 0.44; phosphorus, 0.06; lime, 1.50 and carbon, 5.60 per cent.

It is stated that during the period of observation, several months, no hand poking was done and the fuel bed at all times was level and loose, permitting a 1/2-in. diameter measur-

ing rod to be pushed down its entire length. A gas temperature of 1400 deg. Fahr. was maintained, no hot spots nor blow holes were developed and the wall remained free of clinker. Ashes were plowed continuously. The turbo-fan blower operated at approximately 50 lb. steam pressure and the total power consumption under maximum load was less than 3 hp. The



*Mechanical Ash Discharge. The ash pan, supported by conical rollers, rotates at same speed as the producer shell*

agitating bar used 270 gal. of cooling water per hour, the overflow cooling the top-plate.

## Machine Shop Meeting at Cincinnati

Among the papers scheduled for the machine shop practice meeting of the American Society of Mechanical Engineers at Cincinnati, Sept. 24-27, inclusive, are the following:

Airplane Production Problems, by R. W. Daniels, Baush Machine Tool Co., Springfield, Mass., and E. T. Jones, chief engineer, Wright Aeronautical Corporation, Paterson, N. J.

Theories of Bearing Lubrication, by Forrest E. Cardullo, chief engineer G. A. Gray Co., Cincinnati, and Analysis of Bearing Lubrication, by A. L. Jenkins, professor of mechanical engineering, University of Cincinnati.

Symposium on Machine Tools—Automotive Industry, by L. L. Roberts, mechanical superintendent Packard Motor Car Co., Detroit. Electric Industry, by J. R. Weaver, superintendent of manufacturing equipment, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Agricultural Implement Industry, by Max Sklovsky, chief engineer Deere & Co., Moline, Ill. Railroad Industry, by L. A. North, shop superintendent Illinois Central Railroad, Chicago.

The meeting provides for numerous plant inspection trips and two night trips by river steamer to Ashland, Ky., and return. Two technical sessions will be held on the boat and at Ashland will be visited the continuous sheet mill of the American Rolling Mill Co. A banquet is scheduled for Wednesday evening, Sept. 26, at which E. A. Muller, president King Machine Tool Co., and vice-president of the American Society of Mechanical Engineers, will be toastmaster.



*All Operations, From Feeding of Coal to Removal of Ashes, Are Mechanically Actuated*

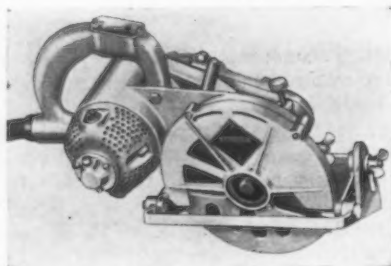
tance to the passage of the blast. The ash plow is of adjustable type, to permit continuous plowing of the ashes regardless of the amount of coal gasified, and a stationary agitating blade is provided to further agitate and move the ashes from the center of the producer toward the outside of the ash pan. The driving mechanism for continuously rotating the producer shell and agitating the poker bar is of simple design, each motion being actuated from a single shaft and without the use of levers, links or universal joints.

Maximum economy in steam consumption and close control of blast saturation is said to be assured by the turbo-fan blower employed, which is of multiple steam nozzle design and is noiseless in operation. Self-sup-

## Small Electric Handsaw in Three Models

A NEW 2-in. capacity electric hand-saw, features of which include ruggedness of design and the use of a patented safety guard, has been added to the portable electric tool line of the Wappat Gear Works, Inc., Pittsburgh. The machine is intended for cutting all kinds of wood, soft metals, bakelite, fiber and other material, and is offered both for production and maintenance work.

Three models are available, one for plain square cutting, another, shown in the illustration, for bevel cutting, and a third having an adjustable dado cutter for grooving. On all models the shoe is adjustable vertically, which permits setting of the saw to cut to a predetermined depth. The lower saw guard completely incloses the saw blade, opens gradually by telescoping into the upper guard as the saw is



*As the Saw Is Pushed Into the Material the Lower Guard Opens Gradually by Telescoping Into the Upper Guard. The shoe is adjustable vertically to permit cutting to predetermined depth. It immediately snaps shut when the cut is finished*

pushed into the material, and immediately snaps shut as the cut is finished.

The machine is equipped with a high-speed fan-cooled universal motor which is furnished with ball bearings, and the arrangement is such that a blast of air is thrown to the front of the saw, thus clearing away the sawdust and permitting following the line closely. The saw shaft is mounted on tapered roller bearings and is driven by helical gears. The gears are mounted in ball bearings, which are entirely inclosed and run in grease.

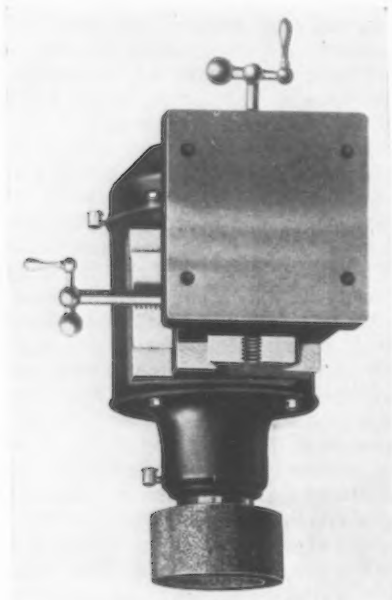
A double-pole non-arcing switch is mounted in the handle within easy reach of the operator's forefinger. The frame is of aluminum. All exposed steel parts of the machine are rust-proofed and in order to provide light weight and strength some of the parts are made of heat-treated aluminum alloy. A steel saw-table, measuring 16 x 26 x 11-in. high, can be furnished.

## New Vertical Spindle Grinders

THE Hisey-Wolf Machine Co., Cincinnati, has added to its line a vertical-spindle grinder which is available in three types, having vertical, horizontal and double slide adjustment, respectively, the last named type, with the double slide adjust-

be done at one setting. The grinders are available in 1, 2 and 5-hp. sizes for alternating current and in 3-hp. for direct current. The 1-hp. machine, equipped for 220 or 440 volt three-phase alternating current, has a no-load speed of 3500 r.p.m. and em-

ploys a cup wheel 6 in. in diameter, 3 1/4 in. high and a straight wheel 7 in. in diameter, 1 in. face. The weight is 110 lb., net. The largest machine of the same series operates at 1750 r.p.m., no load, takes an 8 x 4-in. cup wheel and a 12 x 1 1/2-in. straight wheel. The weight of this size is 280 lb., net.



*Vertical Spindle Grinder with Double Slide Adjustment. Machines with vertical and horizontal slide adjustment, respectively, are also available*

ment, being shown in the accompanying illustration.

The machines are designed primarily for thrust grinding with the spindle in the horizontal position or with the grinding wheel swung down at any angle. Ball bearings, inclosed in leak-proof housings and lubricated constantly by a bath of oil, are used throughout. When employed in conjunction with a boring mill many internal and surface grinding jobs can

## Improved Blacksmith's Hammer

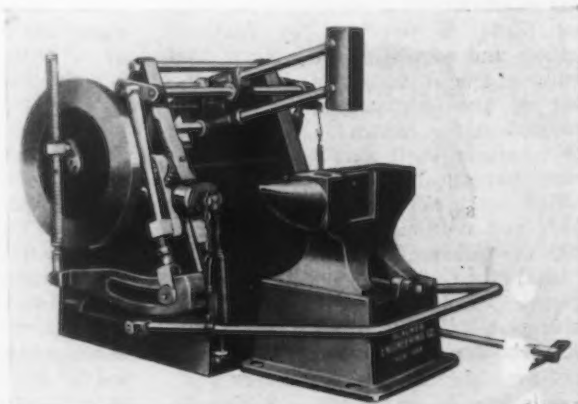
THE Blacker Engineering Co., Grand Central Terminal, New York, is marketing an improved model "B" blacksmith hammer, which is offered as a one-man power-operated tool, dispensing with the services of a striker. The machine retains the principles of the company's previous hammers but has been improved in a number of details and is larger and heavier. Thrust bearings are now employed in connection with the control mechanism and the motor drive has been rearranged to provide greater compactness of the machine as a whole.

The machine is essentially a power-operated sledge which works upon an ordinary anvil and requires the usual

hand anvil tools. A link motion provides positive control of the blows. The head has lateral traverse along the anvil face, with automatic knock-offs over the two hardie holes. The traverse of the head is controlled by the winged foot-lever shown at the right of the anvil, while the force of the blow is controlled by varying the amount of depression of the foot treadle which extends around the anvil. The blow struck may be varied from a light tap to about four times as heavy as that of a man striking. The hammer is arranged to strike up to 140 blows per min. It is rated to work 2 1/2-in. and larger material.

Double shouldering operations may be done on the anvil illustrated, which

*Compact Arrangement of the Driving Motor Is an Improved Feature. The hammerhead may be traversed over the anvil face and strikes made at the rate of 140 blows per min. The force of the blow may be regulated*





has a central cutout, as shown. This anvil is of special design and is finished to its block, which is fitted with adjusting screws. A 1½-hp. motor is

employed for the drive, the motor being connected to the driving shaft and flywheel by a fiber pinion and large driving gear.

## Arc-Welded Overhead Traveling Crane

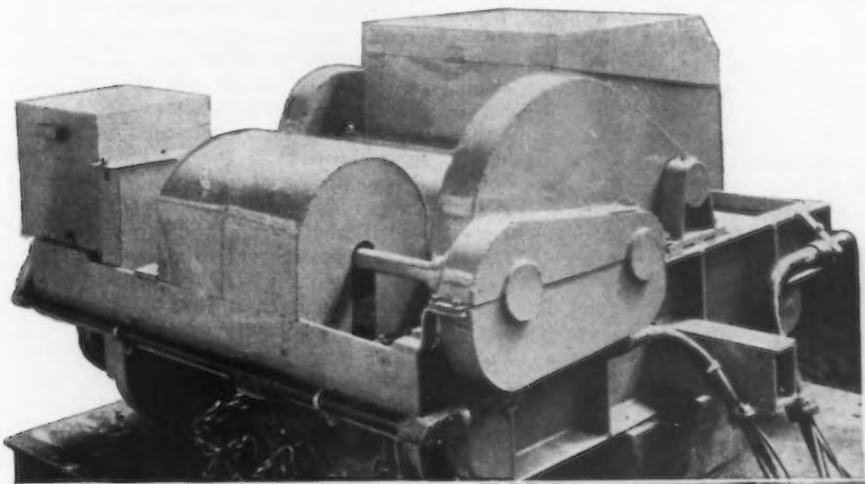
**I**N a new design of overhead traveling crane of the Cleveland Crane & Engineering Co., Wickliffe, Ohio, the bridge girders, end trucks and trolley are constructed by arc welding. Illustrations are from a 5-ton

welded to the standard I-beam sections. Riveted girders of similar construction would employ a channel section instead of the two angles. However, this extra material would, it is said, give less strength and rigidity.

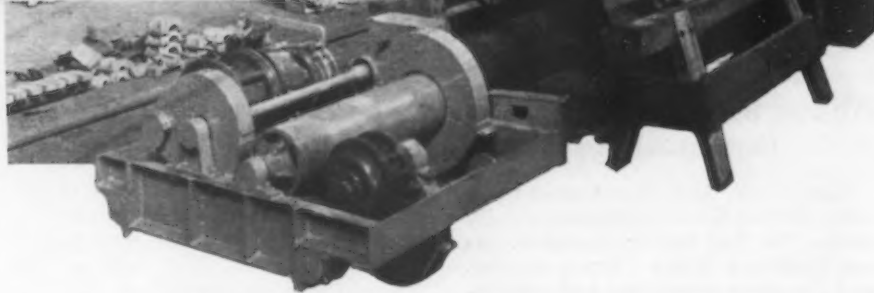
ers and trucks are disassembled. The field connection is made by bolts, but additional arc-welded reinforcement is recommended to secure maximum rigidity. The end trucks themselves are built up of two standard channel sections joined by arc welding. Roller bearings are used on this crane, permitting rapid acceleration and low power consumption.

Two small standard arc-welded trolleys are illustrated. Each trolley frame is made of a standard channel with arc-welded braces under each bearing point. Gear guards are arc welded, as is also the hand rail on the foot bridge and the bearing supports for the bridge drive shafts.

The welding on this crane was done by Lincoln electric machines. The advantage claimed for arc-welded crane construction, other than greater rigidity and strength, is that a more effi-



*Welded Parts for Crane. In addition to the welding shown on housings and guards above, each girder of the crane has angles arc welded the entire length to the standard I-beams. Two smaller arc-welded trolleys are shown at right, their frames being formed by welding the pieces together*



crane of the I-beam girder type, with span of 38 ft. 9¼ in.

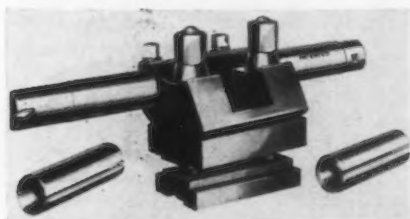
Each girder is reinforced throughout its entire length by angles arc

The girders are attached to the end trucks by notched or shoulder construction designed to prevent weaving. To facilitate shipping, the gird-

cient distribution of weight is possible, thus making it possible to lighten certain moving parts and thereby to obtain greater acceleration.

## Boring and Turning Bars for Use on Lathes

**A**DJUSTABLE boring and turning bars designed for use on lathes have been placed on the market by Scully Steel & Iron Co., 2364 South Ashland Avenue, Chicago. They are



*By Adjusting the Bar in the Holder Any Desired Rake of the Cutters Can Be Obtained*

offered in five sets with bars ranging from ¾ in. in diameter by 14 in. in length to 3 in. in diameter by 30 in. in length, and equipped with ¼ in. to ¾ in. cutters.

In addition to boring and turning, the bars can be used for both external and internal threading. They are of one-piece construction and of special alloy steel, with ends heat treated. The holders are arranged so that the bars can be adjusted over a wide

range. Large bearing surface is provided in the holder to assure rigidity of the bar, and the bar is maintained parallel with the center of the lathe. By reversing the holder the largest piece that the lathe will swing can be turned.

## British Association Issues Drill Specifications

**A** STANDARD specification for twist and straight fluted drills has been issued by the British Engineering Standards Association. Standard diameters, overall lengths and flute lengths for the various types of drills and the dimensions of the Morse taper shanks are given.

Limits are laid down for variation in diameter of the drills, and performance tests are specified for both carbon and high-speed drills from No. 60 to 2-in. diameter, inclusive. The performance tests consist in drilling a series of holes in steel billets of a

given analysis. Penetration per minute and the number and depth of the holes to be drilled are specified, but the r.p.m. and the feed per revolution are left to the discretion of the maker. The drills must withstand these tests without seizing, choking or fusing, and the points of the drills and the lips must be in good condition and fit for further service without regrinding on completion of the tests. Standard nomenclature and definitions for the different types of drills in common use are also included in the specification.



# British Pig Iron Exports Improving

Steel Market Affected by Summer Quiet—European Mills Busy with Domestic Orders—Japan Imports Less Finished Material

(By Cable)

LONDON, ENGLAND, Aug. 20.

THE iron and steel markets are quiet as Cleveland plants have closed for the annual holidays. Palmers Steel Co., Ltd., is closing for a period, thus blowing out two blast furnaces, but Dorman, Long & Co. are resuming operation of one furnace at Newport on hematite and one Carlton furnace on ferromanganese.

Demand for hematite has improved, especially in the export market, and makers have advanced prices as stocks have diminished. Foreign ore is quiet.

Finished iron and steel is generally dull but makers are expecting a revival of demand in the early autumn. Shipbuilders' orders are scarce and

export demand for heavy steel is quiet. Building constructors and engineering plants are moderately active.

Tin plate is steadier on improved demand and some fair business has been booked by Welsh mills. A number of mills have decided to begin the agreed period of suspension at the end of the current month, when restriction begins as they are in need of orders for September shipment, but are well booked for October to December delivery.

Galvanized sheets are quiet, but the price is well maintained and Indian demand is expected to revive soon. Black sheets continue quiet.

Continental markets are firm as a result of sustained domestic demand, but sales to British users are small.

try almost self-sustaining in that product. By next spring it is expected that there will be two new privately owned sheet mills in operation in addition to those now in production, which include the largest producer, the Kawasaki Dockyard Co. at Kobe. Japanese galvanizing plants now claim that the product of the Kawasaki company is in every way equal to the best brands of American and British mills. The Imperial Steel Works, as recently reported, is rapidly increasing its production of tin plate, which is still well below the total requirements of the country.

The development of steel production in Japan is changing the character of Japanese buying, resulting in smaller purchases of finished products and a heavier demand for semi-finished materials, as has been predicted for several years. There is a larger demand for billets, blooms and sheet bars, but this material, as in the case of plates, shapes and bars, is bought almost exclusively from European makers, at lower prices than can be obtained from mills in the United States.

Importers of steel in New York report moderate activity in bar-sized angles and still have some substantial tonnages arriving, in most cases of material bought at lower than the current European quotation. Although the price represents only a small sav-

## Japan Importing Less Finished Steel

Almost Self-Sustaining in Sheets and Is Increasing Tin Plate Output—Buys More Semi-Finished in Europe

NEW YORK, Aug. 21.—Export trade with the Far East continues decidedly small. No real buying movement has yet developed in the Chinese market, and Japanese merchants and consumers are limiting their purchases because of the low exchange value of the yen. The decrease in Japanese

buying that has been so much in evidence in recent months is viewed by some exporters to Japan as a permanent condition. They are of the opinion that by the end of this year little sheet business can be expected from Japan, as increased domestic capacity has already made the coun-

British and Continental European prices per gross ton, except where otherwise stated, f.o.b. makers' works, with American equivalent figured at \$4.86 per £ as follows:

Durham coke, del'd....	£0 17½s.	\$4.25
Bilbao Rubio ore*.....	1 2½	5.48
Cleveland No. 1 fdy.....	3 8½ to £3 9½s.	16.64 to \$16.89
Cleveland No. 3 fdy.....	3 6	16.04
Cleveland No. 4 fdy.....	3 5	15.80
Cleveland No. 4 forge....	3 4½	15.68
Cleveland basic (nom.)...	3 5	15.80
East Coast mixed.....	3 10	17.11
East Coast hematite....	3 10½	17.23
Rails, 60 lb. and up.....	7 15 to 8 5	37.66 to 40.10
Billets.....	6 0 to 6 15	29.16 to 32.81
Ferromanganese.....	12 15	66.83
Ferromanganese (export)	13 0 to 13 5	63.18 to 64.39
Sheet and tin plate bars,		
Welsh.....	6 0	29.16
Tin plate, base box.....	0 18¼ to 0 18½	4.40 to 4.43
Black sheets, Japanese		
specifications.....	13 7½	65.00
C. per lb.		
Ship plates.....	7 12½ to 8 2½	1.63 to 1.74
Boiler plates.....	9 0 to 10 10	1.92 to 2.25
Tees.....	8 2½ to 8 12½	1.74 to 1.84
Channels.....	7 7½ to 7 17½	1.58 to 1.69
Beams.....	7 2½ to 7 12½	1.53 to 1.63
Round bars, ¾ to 3 in....	7 5 to 7 15	1.55 to 1.66
Steel hoops.....	9 0 to 10 0	1.92 to 2.14
Black sheets, 24 gage....	9 15 to 10 0	2.09 to 2.14
Galv. sheets, 24 gage....	13 7½ to 13 10	2.86 to 2.93
Cold rolled steel strip, 20		
gage, nom.....	16 0	3.42

\*Ex-ship, Tees, nominal.

## Continental Prices All F.O.B. Channel Ports (Per Metric Ton)

Foundry pig iron (a):			
Belgium.....	£3 3s. to £3 5s.	\$15.32 to \$15.80	
France.....	3 3 to 3 5	15.32 to 15.80	
Luxemburg.....	3 3 to 3 5	15.32 to 15.80	
Basic pig iron (nom.):			
Belgium.....	3 1 to 3 2	14.82 to 15.07	
France.....	3 1 to 3 2	14.82 to 15.07	
Luxemburg.....	3 1 to 3 2	14.82 to 15.07	
Coke.....	0 18	4.37	
Billets:			
Belgium.....	4 17½	23.69	
France.....	4 17½	23.69	
Merchant bars:			
Belgium.....	5 17	1.29	C. per lb.
France.....	5 17	1.29	
Luxemburg.....	5 17	1.29	
Jolts (beams):			
Belgium.....	4 19	1.09	
France.....	4 19	1.09	
Luxemburg.....	4 19	1.09	
Angles:			
Belgium.....	5 15	1.27	
½-in. plate:			
Belgium (a).....	6 12	1.45	
Germany (a).....	6 12	1.45	
3/16-in. ship plate:			
Belgium.....	6 8	1.41	
Luxemburg.....	6 8	1.41	
Sheets, heavy:			
Belgium.....	6 1	1.33	
Germany.....	6 1	1.33	

(a) Nominal.

ing from the present quotation of domestic makers, some business is still being done in hoops and bands. Another advance has been made by European mills in the price of bars and shapes, and plain steel bars of Thomas grade are quoted today at about 1.85c. per lb., c.i.f. New York, which is too high to permit any sales. No further action on the tariff reclassification of reinforcing bars, bar-sized shapes and the question of marking foreign steel is expected until fall.

### Germany Works for Simplification of Shapes

HAMBURG, GERMANY, Aug. 4.—Standardization work in the German steel industry is being further extended. The list of ordinary sections for all structural shapes, including beams, tees and channels, is to be revised, reducing the number of standard sizes by about 40 per cent. German mills are cooperating with the Saar and Austrian industries so that the new standards will be widely accepted. The new list is to be published next month, after which it will be open to general discussion and amendment by the interested mills for a period of three months.

### Germans Reduce Price of Magnesium Alloy

HAMBURG, GERMANY, Aug. 4.—Following the recent reduction in the price of aluminum, German makers of "electron" (magnesium alloy) and the Czechoslovakian, Swiss and Italian licensees, have reduced the price by £7 10s. per ton (1.65c. per lb.), to avoid losing business to the aluminum producers. It is expected that a further reduction in the price of electron will be made at a meeting of the Central European producers at the end of this month. Output of the alloy in the first half of 1928 exceeded the production in the first half of 1927 by about 40 per cent.

### Belgian Prices Still Rising, with Exports Good

ANTWERP, BELGIUM, Aug. 3.—Despite the recent holiday period, the steel market continues active and prices are becoming firmer. Export demand is good, especially from India and China, and mills are in most cases unable to offer better than October delivery.

Pig iron is in active demand and prices are strong, with ordinary No. 3 phosphoric foundry iron quoted for export at about £5 15s. (\$27.95) per ton, f.o.b. Antwerp. Scarcity of supplies of semi-finished material has caused further strengthening of prices on billets, blooms and slabs. Only a few makers are in the market. Current quotations range from £4 7s. to £4 14s. (\$21.14 to \$22.84) per ton on blooms, £4 15s. 6d. to £4 17s. (\$23.20 to \$23.57) on billets and about

£4 18s. (\$23.81) per ton, f.o.b. Antwerp, on sheet bars.

Orders for finished steel are in good volume, and mills are quite generally quoting deliveries beyond Oct. 1. Prospective buying by foreign consumers has had a good effect on the market, and prices are still advancing in expectation of continued export business. Prices on steel bars show some irregularity, as practically all mills are seeking small tonnages of certain sizes to complete their rolling schedules. Quotations range from £5 15s. to £5 16s. 6d. per ton (1.27c. to 1.29c. per lb.). Beams are slightly less firm as a result of weakness in quotations by French sellers. Beams continue at £4 18s. 6d. per ton (1.08c. per lb.), angles at £5 13s. 6d. per ton (1.25c. per lb.), corrugated bars at £5 19s. per ton (1.31c. per lb.), and hot-rolled hoops at £6 17s. 6d. per ton (1.52c. per lb.), all f.o.b. Antwerp.

### Russia Hires German Steel Workers as Foremen

HAMBURG, GERMANY, Aug. 4.—The Russian Soviet Government has apparently changed its policy of excluding foreign workmen from its steel plants and has contracted with a number of German skilled workers, who leave this month to take positions in Russian steel plants as foremen and superintendents. The Germans, 27 of whom are from Solingen, 110 from Dortmund open-hearth plants and about 400 from various other mills in Germany, will receive about two and a half times more in wages than the Russian steel workers.

### German Wire Mills Using Fewer Wooden Reels

HAMBURG, GERMANY, Aug. 4.—Wire manufacturers have apparently finally been successful in introducing steel wire reels for barbed wire instead of the usual wooden reels. The steel wire reels reduce the total weight by about 1½ per cent, making the railroad and ocean freight rate on export shipments lower. The wire mills claim that the Latin-American, Asiatic and Indian markets are accepting increasing quantities of wire furnished on wire reels.

### Ore Imports by Germany Large in June

HAMBURG, GERMANY, Aug. 4.—Importation of iron and manganese ore was quite active in June, with arrivals of 1,165,000 tons of iron ore and 28,000 tons of manganese. There were practically no arrivals of Swedish iron ore because of the strike at the Swedish mines, which only recently ended. Prices on manganese ore have been about 15d. (30c.) per unit for 48 per cent and 16¼d. (32.5c.) per unit for 52 per cent Caucasian. Bilbao ores have sold at 19s.

(\$4.62) per ton for 50 per cent and French ore at 16s. 3d. (\$3.95) per ton for 48 per cent, c.i.f. Rotterdam or Emden.

### Carnegie Company to Build Pittsburgh Warehouse

The new Pittsburgh warehouse of the Carnegie Steel Co. to replace the old one on Eleventh Street, the site of which recently was acquired by the Pennsylvania Railroad, will be located on part of the site of the McCutcheon mills of the company, on Reedsdale Street, North Side. The site contains more than 3 acres. The main warehouse buildings will consist of four parallel buildings or bays covering a space of 287 x 387 ft., of steel construction with corrugated galvanized steel roofing and siding.

In each of three of the bays there will be one 10-ton double-trolley overhead traveling crane, while the fourth bay will have two of this same type. Auxiliary buildings will include the present office of the McCutcheon mill and the machine shop, the latter to serve as a substation, sanitary station and garage. Standard-gage tracks will be provided to connect with railroad trunk lines.

Electric power will be supplied by the Duquesne Light Co. through an 11,000-volt transmission line to the substation, which will be equipped with three 350-kva. power transformers, one 100-kva. lighting transformer and two 200-kw. motor-generator sets.

The plant will be equipped with modern warehouse machines such as friction saws, bar, plate and angle shears, punches, drill presses and riveting machines. The engineering features of this new warehouse have been worked out by that department of the steel company, and it is expected to be ready for operation by the end of the year.

### Production Basis of Aircraft

With the recent announcement by the Stout Metal Airplane Co. (Division of Ford Motor Co.) that it has established a production program providing for two tri-motored transports per week, Detroit aircraft production has now reached a total of 50 per week. The Stinson Aircraft Corporation is producing 25 planes per month and the Buhl Aircraft Corporation 18. In addition to these three companies there are in the Detroit area 39 companies producing aircraft motors, parts and supplies.

A newcomer in the field, announced last week, is the Verville Aircraft Co., which is backed by the Briggs Body interests. The new company will occupy the old Rickenbacker plant, having 300,000 sq. ft. of floor space. This will be the largest aircraft plant in the Detroit area and one of the largest in the country. Production will begin at once on small, low-priced planes and flying boats.



## Jones & Laughlin Group Insurance

### Company Announces Contract Providing Employees with \$25,000,000 of Group Life Insurance and Sickness and Accident Benefits

THE Jones & Laughlin Steel Corporation, Pittsburgh, has announced a contract with the Metropolitan Life Insurance Co., New York, providing the 25,000 employees of the corporation and its subsidiaries with \$25,000,000 of group life insurance. The contract also provides \$25,000,000 of accidental death and dismemberment insurance and substantial weekly benefits for sickness and accident. The insurance is being issued on a cooperative basis, whereby the corporation and its employees share the premium cost. This fixes the worker's share at less than 5c. a day and provides him with insurance at from one-ninth to one-third of the cost he would otherwise pay, depending upon his age.

"After studying the problem," said T. M. Girdler, president of the Jones & Laughlin company, "we decided that the plan should include a life policy for \$1,000 payable at death, which contains a total and permanent disability clause making the amount of the policy payable in monthly installments, with interest, in case such disability resulted before the insured attained the age of 60, benefits of \$12 a week for a period of 13 weeks for employees incapacitated by sickness or non-occupational accident, and a special indemnity of \$1,000 for accidental death or dismemberment.

"The insurance is offered without medical examination to every employee actively at work, irrespective of age, sex or physical condition. This is an important provision, as statistics show that one in every 12 examined for individual insurance is rejected by the insurance companies as unfit.

"In case of total and permanent disability, the insurance provides that after an employee has drawn his temporary benefits of \$12 a week for 13 weeks, he will then draw the face value of his policy in equal monthly installments for the following 40 months. Thus the combined benefits for totally and permanently disabled employees will cover a period of three years and seven months. These benefits in no way interfere with or take the place of any Workman's Compensation benefits.

"In addition to the actual insurance and other protection, each insured employee will receive periodically pamphlets dealing with the preservation of health and the prevention of disease."

More than 15,000 of the Jones & Laughlin employees, who will benefit by this insurance are engaged at the South Side, North Side and Aliquippa works and the remaining 10,000 are distributed throughout the district sales offices and subsidiary companies.

### Chairmen Selected for Steel Treating Sessions

Chairmen and vice-chairmen for the 10 technical sessions of the annual convention of the American Society for Steel Treating have been selected and are announced as follows:

#### Monday, Oct. 8

Morning session. Chairman: R. M. Bird, district sales manager Midvale Co., New York, and chairman Philadelphia convention committee. Vice-chairman: R. H. Patch, research department E. F. Houghton Co., Philadelphia, and chairman Philadelphia chapter.

Afternoon session. Chairman: Albert E. White, director department of engineering research, University of Michigan, Ann Arbor, Mich. Vice-chairman: Victor O. Homerberg, assistant professor of metallurgy Massachusetts Institute of Technology, Cambridge, Mass.

#### Tuesday, Oct. 9

Morning session. Chairman: J. A. Mathews, vice-president and director of research development Crucible Steel Co. of America, New York. Vice-chairman: Marcus A. Grossmann, metallurgical engineer Central Alloy Steel Corporation, Canton, Ohio.

Afternoon session. Chairman: T. D. Lynch, consulting metallurgical engineer Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. Vice-chairman: Edgar

C. Bain, research department United States Steel Corporation, Kearney, N. J.

#### Wednesday, Oct. 10

Morning session. Chairman of the annual meeting of the American Society for Steel Treating: Fred G. Hughes, president of the American Society for Steel Treating and vice-president and director New Departure Mfg. Co., Bristol, Conn.

Chairman of the Campbell Memorial Lecture: Dr. George K. Burgess, director of United States Bureau of Standards, Washington.

Afternoon session—joint meeting of Institute of Metals and American Society for Steel Treating. Chairman: Dr. Zay Jeffries, consulting metallurgist Aluminum Co. of America, incandescent lamp department of the General Electric Co., Cleveland, and National Tube Co., Pittsburgh; vice-chairman of the Institute of Metals, and vice-president of American Society for Steel Treating. Vice-chairman: R. S. Archer, metallurgist research bureau, Aluminum Co. of America, Cleveland.

#### Thursday, Oct. 11

Morning session. Chairman: Dr. Albert Sauveur, professor of metallography and metallurgy Harvard University, Cambridge, Mass. Vice-chairman: J. P. Gill, metallurgist Vanadium Alloys Steel Co., Latrobe, Pa.

Afternoon session. Chairman: J. Fletcher Harper, research engineer, Allis-Chalmers Mfg. Co., Milwaukee. Vice-

chairman: Francis H. Clark, metallurgist Western Union Telegraph Co., New York.

#### Friday, Oct. 12

Morning session. Chairman: Bradley Stoughton, professor of metallurgy Lehigh University, Bethlehem, Pa. Vice-chairman: E. F. Cone, associate editor THE IRON AGE, New York.

Afternoon session. Chairman: W. Trinks, professor of mechanical engineering Carnegie Institute of Technology, Pittsburgh.

Morning sessions will be held in the ball room of the Benjamin Franklin Hotel, the society's headquarters, and the afternoon sessions are scheduled for the assembly room at the Commercial Museum where the National Metal Exposition will be held.

### New England Industries Meeting

A New England Industries meeting will be held by the American Society of Mechanical Engineers at Boston, Oct. 1, 2 and 3, with headquarters at the Statler Hotel, that city. The general topics to be covered include materials handling, management, education and training for the industries, machine shop practice and power. Among the papers scheduled are the following:

Apprentice System of Lynn Plant, General Electric Co., Charles K. Tripp, supervisor of apprentices, General Electric Co., Lynn, Mass.

Experience in the Selection of Apprentices with the Aid of Tests, Walter S. Berry, director of training, Scovill Mfg. Co., Waterbury, Conn.

Handling Marine Shipments of Pulpwood; Improved Methods for Large Operation, D. W. Coe, vice-president and general sales manager Canadian Mead-Morrison Co., Ltd., Montreal.

Handling in Sugar Refining, C. G. Spencer, Baker & Spencer, Inc., New York.

Air Transportation in Relation to New England, Sumner Sewell, traffic manager Colonial Air Lines.

Aviation Engines, A. Willgoos, chief engineer Pratt & Whitney Aircraft Corporation, Hartford.

Review of Ball and Roller Bearings in Aircraft, F. W. Mesinger, Norman-Hoffman Bearing Corporation, Stamford, Conn.

Design of Columns of Varying Cross-Section, A. Dinnick, professor of mechanics, Institute of Mines, Dniepropetrovsk, Union of Soviet Socialist Republics.

Mechanics of Plate Rotors for Turbo-Generators, J. P. Den Hartog, Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa.

Progress in New England, William J. Fortune, vice-president National Shawmut Bank, Boston.

Proper General Management of Industry, Jerome R. George, vice-president Morgan Construction Co., Worcester.

Tests on Belleville Springs Made by the Ordnance Department, U. S. A., D. A. Gurney.

Belleville Springs, A. M. Wahl, research department, Westinghouse Electric & Mfg. Co.

Developments in Internal Grinding, Alden M. Drake, chief engineer Greenfield Tap & Die Corporation, Greenfield, Mass.

Power Supply for New England Industry, Frank M. Gunby, engineering manager Charles T. Main, Inc., Boston.



# Ohio Foundrymen Meet at Cedar Point

## Molding Sand Receives Much Attention—Merchandising Foundry Products—Insurance and Compensation

**M**ATTERS affecting the foundry industry were discussed at the eighth annual convention of the Ohio State Foundrymen's Association, held at Cedar Point, Ohio, Aug. 16 and 17. One of the two sessions was devoted to workmen's compensation, insurance and safety, these subjects being discussed by representatives of the Ohio Industrial Commission. There was the usual attendance of over 100.

Announcement was made of the resignation of Arthur G. Tuscany, who has been secretary-manager of the association for the past six years, and who will sever his connection with the organization Sept. 1 to become secretary of the recently organized Gray Iron Institute, which will establish its headquarters in Cleveland. Mr. Tuscany's successor has not yet been named. There is a possibility that the headquarters of the Ohio association will be moved from Cleveland to Toledo.

All the old officers were re-elected: President, C. C. Smith, Toledo Steel Casting Co.; vice-president, Don McDaniel, Hamilton Foundry & Machine Co., Hamilton; treasurer, Edgar Sands, Superior Gas Engine Co., Springfield. The following new members were elected to the board of administration: W. P. Anglemeyer, Star Foundry Co., Troy; Charles E. Dine, Minster Machine Co., Minster; Robert Hopkins, Alliance Brass & Bronze Co., Alliance; E. A. Leary, Cincinnati Steel Casting Co., Cincinnati; Charles Seelbach, Forest City-Walworth Run Foundries Co., Cleveland.

### To Change Name of Association

The association is taking steps to change its name to the Ohio Foundries Association and it will be incorporated shortly under the latter name.

Eighteen new members were added during the year and five were lost, according to the report of Secretary Tuscany. He outlined some of the activities of the association during the year, mentioning particularly the establishment of a reader service department, to keep members informed about articles referring to the foundry industry in the trade and technical press. This service, he said, had been favorably received. He announced that the Ohio Industrial Commission has recently reduced the insurance rate for brass and aluminum foundries from 80 to 70c. for each \$100 of payroll.

President Smith in a brief annual report outlined some of the services

rendered members by the association and urged the cooperation of foundrymen. He said that there had been some extensions of the plan of holding group meetings of members located in a city or immediate territory, and he favored the formation of additional groups.

### Better Merchandising for Foundry Products

Changes in conditions relating to the sale of castings were pointed out by H. Cole Estep, vice-president Penton Publishing Co., Cleveland, in a discussion of "Merchandising Foundry Products." "It is now necessary to create a market situation which will make it possible to develop profitable trading," he declared. Foundrymen have been thinking in terms of production, but it is now important to think of buying and selling—the trading end of the business. The day castings were bought is gone, he declared; today foundrymen must get out and sell their product.

Group competition by makers of forgings, stampings and other metal products makes it necessary for the gray iron foundryman to adopt better merchandising methods. Foundrymen have not been alert in maintaining the position they are entitled to in the engineering field. The speaker stressed the statement that consumers' specifications for castings have not kept up with the improvement in the quality of castings. He urged foundrymen to impress on buyers the improvement that has been brought about in the quality of castings. This would counteract the effect of the propaganda of some of the makers of competitive products.

Steel and malleable foundries have done good work in extending the use of their products, according to the speaker, but gray iron foundries seem to have lagged. The gray iron industry, because of its excess capacity, needs efforts in this direction more than the steel and malleable foundries.

The speaker made several suggestions regarding merchandising castings. He urged an improvement in the quality of product, saying that too many bad castings are still being made. Foundrymen should do their part in creating a satisfactory price situation. There is no excuse, he said, for selling castings on a base pound price. An equitable price situation should be established, not based on pig iron prices. Every foundryman should preach the gospel of castings. Gray iron foundries are bound to lose some business to competitive products and must develop new out-

lets for castings. He said there are probably 1000 new uses for castings for foundrymen to dig out.

### Three Things to Watch in Molding Sand

An interesting talk on foundry sand was given by H. W. Dietert, chief industrial research engineer United States Radiator Corporation, Detroit, who took for his subject, "The Required Foundry Knowledge on Molding Sand." Three things, he said, should be watched in controlling foundry sand. These are the sand grains, clay and water. Grains give permeability and structure and assure a smooth finish on the castings. They also impart uniform color to the castings. The grains also have insulating properties. He favored using as fine a sand as possible, to give castings a fine finish. Clay has various effects, providing strength or bond and reducing permeability. Both clay and water increase scabs. Water increases the amount of sand grains sticking to the pattern, causing a rough finish, and decreases the amount of ramming force necessary.

The speaker listed the various ways of testing sand for temper, permeability and strength. In his opinion dry bond strength has not received enough attention. The methods of changing sand conditions to provide moisture, permeability and strength were outlined. He warned against allowing night gangs to place too much burnt core sand in the heaps. One foundry had increased dry sand strength by adding Bentonite and had reduced losses 40 per cent. The cost of molding sand, he said, could be reduced by the use of high-bonded new sand, the use of a good mixing system in not dumping heap sand, reducing the amount of molding sand entering the cleaning room and reducing the core sand entering the heap sand from castings.

### Taxes and Insurance Rates

Probably two-thirds of the Ohio corporations pay more in taxes than in dividends, declared George B. Chandler, secretary of the Ohio Chamber of Commerce, Columbus, in a talk on taxation and public expenditures and their relation to Ohio business. He characterized the corporation franchise tax in Ohio as a pernicious form of taxation and said he hoped that the State would be able to save enough in other ways to permit it to eliminate that tax.

Considerable light was shed on the operation of the Industrial Insurance Department of the State by W. T.

Leonard, member of the Industrial Commission of Ohio, who took for his subject, "Industry's Big Asset." He said that the present Ohio insurance rate for gray iron foundries of \$1.20 for each \$100 of payroll is lower than in many other States, and that the maximum death award of \$6,500 and the weekly indemnity of \$18.75 are higher than in other States. In New York, he said, iron foundries pay a rate of more than \$3 for each \$100 of payroll. Rates in other States he named were: Illinois, \$1.61; Indiana, \$1.67; Michigan, \$1.63; Pennsylvania, \$1.35; Kentucky, \$2.34. The Ohio rates for steel, malleable and brass foundries are lower than those in other States, according to the speaker.

E. I. Evans, actuary of the Ohio Commission, discussed insurance rates and how they affect premiums. H. P. Sutherly, Columbus, in a talk on "What You Should Know About Industrial Claims," gave considerable information relating to rulings of the Ohio commission and statutory regulations regarding insurance claims. He stressed the importance of giving men physical examinations before employment, for the reason that, should an employee make an injury claim, it is important that the employer know of any disability which may have existed previously. This knowledge would protect the employer from claims that might be made for disabilities incurred previous to the man's employment.

Enormous losses that industries are suffering because of industrial accidents were pointed out by Fred G. Lange, special representative of the division of safety and hygiene of the State Industrial Commission, who said that in the industries in Ohio there are 1000 deaths and 200,000 injuries in a year. Employees are paying \$18,000,000 a year directly for these losses, to the State and for self insurance, and an insurance company has figured out that the indirect losses are four times as great as the direct ones.

Most of these accidents, he said, can be prevented. The most important single factor in accident prevention is the attitude of the manufacturer, declared the speaker. He should realize that accidents can be prevented. A man properly qualified should be put in charge of the safety department; this work should not be entrusted to a mere clerk. No expenditure will bring greater returns than accident prevention. Not only will it pay in direct savings, but also in improving the morale of the organization. Safety rules, such as requiring the wearing of goggles, should be strictly enforced. He urged the provision of all proper mechanical safeguards, shop committees on safety and other inter-plant safety committees.

An informal banquet was held Thursday evening, after which there was speaking and dancing. President Smith acted as toastmaster.

Inc., by the Republic Iron & Steel Co. follows a series of absorptions by the latter company over a period of several years, the last previous one being the taking over of the properties of the Trumbull Steel Co., Warren, Ohio.

Under the terms of the merger the Republic company will acquire a majority of the Steel & Tubes, Inc., common stock at the equivalent of \$170 a share. Terms provide that for each share of common stock Steel & Tubes stockholders will receive \$50 face amount of 6 per cent debentures of Steel & Tubes; 8/10 of one share of non-par \$4.50 dividend class A preferred Steel & Tubes stock; 5/10 of one share of non-par \$4.50 dividend class B preferred Steel & Tubes stock and 7/20 of one share of common stock of the Republic Iron & Steel Co.

### Brown-Fayro Co. Buys Mine Pump Line

The business of the Austin Mine Gathering Pump Co. has been sold by Dravo-Doyle Co., Pittsburgh, to the Brown-Fayro Co. of Johnstown, Pa. The latter will maintain a Pittsburgh office and warehouse at 104 Market Street, in charge of Edward F. Austin as vice-president and manager. Mr. Austin has severed his connection with Dravo-Doyle Co. to take this new position. The Dravo-Doyle Co. has transferred its entire stock of mine pumps and repair parts to the Brown-Fayro Co. In the mining field Dravo-Doyle Co. will continue to handle the equipment of the DeLaval Steam Turbine Co., Shepard Electric Crane & Hoist Co., Cochrane Corporation and the C. H. Wheeler Mfg. Co.

## Republic to Acquire Steel & Tubes, Inc.

### Youngstown Company Will Take Over Cleveland Company Making Electrically Welded Steel Tubing and Other Products

THE consolidation of Steel & Tubes, Inc., Cleveland, with Republic Iron & Steel Co., Youngstown, Ohio, has been effected, subject to the ratification by the stockholders of the former company. This merger will furnish the Republic company important additions to its present line of products, and at the same time will supply it with an outlet for considerable semi-finished steel. Steel & Tubes, Inc., has been buying from 3000 to 4000 tons of steel per month in the open market, largely in the form of billets, but its purchases include a small tonnage of both hot and cold-rolled strip in widths that it does not manufacture.

The principal product of Steel & Tubes, Inc., at present is electrically welded steel tubing, which is made under the Johnson patents, which it controls. The company also makes high carbon butted and brazed pipe and shortly will begin the manufacture of light steel conduit to be used in the building field. It is also a seller of both hot and cold-rolled strip steel when its steel output exceeds the requirements of its tube making departments.

Myron A. Wick, president of Steel & Tubes, Inc., will continue to manage its plants and will become a director and member of the executive committee of the Republic company.

Steel & Tubes, Inc., is the successor of the Elyria Iron & Steel Co., which was organized in 1902 and built a small rolling mill plant in Elyria, Ohio, for rerolling old rails and new billets into structural shapes, tie plates, tubing and other products. In 1915 it built a plant in Cleveland for the manufacture of light welded steel tubing by the oxy-acetylene welding process and moved its headquarters to that city. The demand for light steel tubing from the automotive and other industries grew rapidly and the company expanded to take care of this demand. Last fall it took over the Mohegan Tube Co., Brooklyn, and shortly afterwards the change in name was made. Another recent purchase was the plant of the Standard Steel Tube Co., Toledo, Ohio. It also has plants under construction in Detroit and in Brooklyn, the latter for making and conduit.

The acquisition of Steel & Tubes,

### American Electrochemists Establish \$100 Prize

An annual prize of \$100 in gold has been established by the board of directors of the American Electrochemical Society for the best paper printed in the two volumes of any year of the *Transactions* by a student or young college graduate under 27 years of age. The judges to pass upon the merits of the manuscript are to be the members of the publication committee, this committee being at liberty to invite the opinion of members not on the committee, if they choose. The first prize of \$100 is to be awarded for the best paper presented at the spring and fall meetings in 1929. This prize is to be known as the American Electrochemical Society prize—to be available to all American or foreign technical schools and colleges, to students and young instructors—the object being to stimulate original work and encourage participation in the proceedings of the society by scientifically and technically trained men at an age when normally modesty keeps them in the background.



# This Issue in Brief

Physical examinations for prospective employees would save employers large sums in insurance claims. Ohio industries alone suffer 1000 deaths and 200,000 injuries annually, for which employees are paying \$18,000,000 a year in insurance.—Page 474.

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Blades of stainless steel in steam turbines preserve original polish after 3471 hr. use, while nickel steel blades reveal usual corrosion. Stainless steel valves for airplane engines also prove successful because of non-corrosive elements and high strength at elevated temperatures.—Page 454.

\* \* \*

Cylinder molding unit in automobile foundry has produced 1600 castings in 16 hr. Using old methods without conveyor equipment, only 300 cylinder blocks were produced in 9 hr., with twice the floor space.—Page 450.

\* \* \*

Steel company provides employees with \$25,000,000 of group life insurance. Similar amount is provided in accidental death and dismemberment insurance and sickness and accident benefits, with total cost to worker of only 5c. a day.—Page 472.

\* \* \*

Urges rigid tests of imported structural steel before use in important structures. American Institute of Steel Construction head says foreign product should meet standards specified by Society for Testing Materials before leaving mill.—Page 462.

\* \* \*

Foundrymen should think in terms of buying and selling rather than production, says convention speaker. Improvement in quality of castings should be stressed and new fields for products opened.—Page 473.

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Molds made entirely of dry sand cores have displaced green sand molds in manufacture of automobile cylinder block castings at Dodge plant. Castings so made are more uniform in dimensions, in metal thickness and in weight, as mold is said to be held to closer limits.—Page 449.

\* \* \*

Sheet steel industry has expanded sharply in spite of competition of other products. Production increase of 12 per cent in first seven months of 1928, compared with corresponding period last year, with gains of only 6 and 10 per cent respectively in steel ingot and automobile production, indicate success of sheet makers in extending their products into new fields.—Page 476.

\* \* \*

Enlarged dock facilities at Chicago encourage movement of iron and steel on Great Lakes. One new dock has ore-handling capacity of 4000 tons daily, can handle pig iron by means of magnets at rate of 150 tons an hour and has unloaded structural steel sections in lengths up to 90 ft.—Page 453.

\* \* \*

Stainless steel is used in pistons for hydraulic pumps with satisfactory results in England. Piston used continuously for three years was reduced only 0.04 mm. in diameter, while phosphor bronze pistons were 2.8 mm. smaller.—Page 454.

\* \* \*

Outlines method of forging and forming Ford front axles. After cutting to length, a 40-in. forging machine is used to upset and bend each end, and a 5000-lb. hammer and press are employed for blocking, finishing and trimming. Bench inspection follows, after which parts are heated in central section and bent and stretched to proper length in special press.—Page 457.

Homogeneous metal, practically negligible losses of manganese, few non-metallic and gaseous inclusions and the possibility of hotter steel are advantages of making manganese steel in basic electric furnace. Production costs are higher, however, as compared with open-hearth process.—Page 456.

\* \* \*

Some over-capacity is necessary if industry is to go forward, says editorial writer. Labor and mechanical limitations naturally prevent 100 per cent operations, and progress is possible only when old and obsolescent plants are constantly being replaced by new and efficient facilities.—Page 476.

\* \* \*

Good business and prosperity depend upon activity of steel, building and automotive industries, says New England manufacturer. Unfilled orders of Steel Corporation and reports of building contracts enable forecaster to know accurately how much work lies immediately ahead of these two industries.—Page 465.

\* \* \*

Continued growth of United States trade with South America is thought certain by Chilean Ambassador. Says financial and commercial expansion after war resulted largely from the economic potentiality of United States rather than from weakness of Europe.—Page 478.

\* \* \*

Bottom pouring method in making austenitic manganese steels makes for quicker teeming, more uniform pouring conditions and better yield of sound metal, says metallurgist. After teeming, molds should be stripped from ingots as soon as possible and ingots should be delivered to soaking pits at high initial temperature.—Page 456.



A. I. FINDLEY  
Editor

# THE IRON AGE

W. W. MACON  
Managing Editor

ESTABLISHED 1855

## Some Over-Capacity Is Normal

SO much has been written about the evils of over-capacity one would almost think it a recently developed ailment. To cite a few late statistics: It appears that the blast furnaces are making about 72 per cent as much pig iron as they could (if all of them ran at rated capacity without interruption); structural steel fabricators are operating at about the same rate; manufacturers of steel barrels, even though they broke all records as to numbers made, operated at only 61 per cent of capacity; steel foundries at 59 per cent; bituminous coal mines at a fractional rate, and so on. It would almost seem that rapid transit (so called) is the only industry without surplus capacity—and even that has seat room in the middle of the day.

As a matter of fact, over-capacity has been with us these many years. Smooth operations demand a certain amount of stand-by plant to "take up slack" and for reserve when those unforeseen emergencies arise. In other words, a certain amount of idle machinery is normal; that amount must be exceeded before there is any real "surplus" capacity, just as there must be an excess over a normal amount of idleness before a state of unemployment can fairly be said to exist. Doubtless there is much surplus capacity in the steel foundries, when they can operate at only 59 per cent. But just as truly there is no over-capacity in open-hearth furnaces when they are operating at 85 to 90 per cent.

As is well known, 100 per cent operation is impossible to maintain, either from labor or mechanical limitations. Perhaps 10 per cent idleness is normal; only when this figure is considerably exceeded should there be cause for concern. Even so, there are other aspects of the situation.

Would an electric furnace company decline to equip another steel foundry? Would a textile machinery manufacturer refuse an order for a new weaving plant? Or even would a rolling mill manufacturer seriously question the business sanity of a customer who wanted to build a sheet mill? Such business not only tends to the prosperity of the machinery and construction industries, but it is clear evidence of vitality in the others. Only by continuously replacing the old and obsolescent with the new and highly efficient can any industry go forward. Only by bringing in new blood, venturesome souls, clear-eyed to see the trend in demand and the opportunities for economies, can any enterprise prosper unless it be a monopoly.

Thus we come to the second point. Before paying too much attention to the cry of over-capacity, find out whether the jeremiad comes from one who expects an old plant and a mid-victorian product to return him

good profits in this year of 1928. If so, cross him off the list. His is the sad situation of the racer left at the post.

## Notable Expansion in Sheets

COMPARING the first seven months of last year and this, there were increases of about 6 per cent in steel ingot production, 12 per cent in sheet production and 10 per cent in automobile and truck production. These divergent figures are of special interest and furnish some food for thought. The steel ingot production is known with ample accuracy. Sheet tonnage is computed from the fact that for the seven months of last year the sheet association reported 2,061,776 net tons produced by an average of 72.9 per cent of the industry, and for this year 2,269,823 tons by 71.7 per cent. There is other information indicating that the non-reporting sheet producers had substantially the same increase as those reporting, from which it may be computed that in seven months sheet production was about 2,525,000 gross tons last year and 2,825,000 gross tons this year.

When ingots increase 6 per cent and sheets increase 12 per cent there is a noticeable divergence. When it is considered that for several years strips have been replacing sheets in certain classes of consumption, and for two years past the sheet industry has been concerned over the prospects of the wide strip, the divergence from what one might expect is just so much more pronounced. In passing, it is regrettable that there are not more monthly statistics of production of finished steel lines.

One may say that this is a much better automobile year than last, but the production statistics indicate only about 10 per cent increase, and it is the automobile trade in particular that has been mentioned as tending to replace sheets by strips.

That the sheet producers have made strenuous efforts to dispose of their product is well known. They have pursued an intensive and commendable campaign to introduce their product into new uses and to advertise the new uses so as to make them spread. They have quoted very close and highly competitive prices, at the same time insisting that the market prices so developed do not afford a fair return by way of profit.

The sheet mills have had a high production relative to their capacity. The independent sheet mill reports show for six months an average of 96.5 per cent and for seven months, including the relatively low 82.2 per cent for July, an average of 94.5 per cent. The percentages are computed against an assumed capacity that is evidently somewhat low, for the "mechanical operation,"

in turns worked to turns possible, was lower than the percentage computed by tonnage; but it also was high, apparently the highest in any finished steel line outside of tin plate.

Altogether it would seem that the sheet industry is a thriving one in point of demand relative to capacity, in point of growth of its customers, and in point of its successfully meeting the competition of other materials, the one thing lacking being a financial return in keeping with these conditions.

### Gains from Stabilized Prices

THE economic theory of the advantage of transparency in industry leads to stability of prices. Transparency in industry means the ability to look through it, to be able to discern and understand conditions. The greatest agency contributing toward that ability is statistical survey, which means simply the ascertainment of economic facts and making for convenience a numeral instead of a verbal expression of them.

Such an improvement in knowledge tends to eliminate the speculator, who has been defined as a person better gifted for seeing in the dark than are most persons. When there is no darkness that gift becomes valueless. Therefore speculators are not enthusiastic for transparency in industry.

Stability of prices is welcomed, however, by both producers and consumers. They are able to sit around a table in perfect accord as to this. It is welcomed likewise by the engineer who has to build things, and most of all by the laborer, who can easily see in it a symbol and promise for steadiness in employment and maintenance of fair wages.

In life, however, it is seldom that every one can be pleased. There are some interests that are quite averse to price stabilization. Professional speculators feel that way, as we have suggested above. So do brokers, whose functions as intermediaries in a fluxing market are curtailed, perhaps even extinguished. Professional purchasing agents likewise are piqued, for they lose their ability to demonstrate to their superiors how their expertness as buyers has beaten the quotational average. Such grievances may produce a lot of complaining, but as against the general benefit they are quite trivial.

### Now, Mr. Ford!

HENRY FORD, a prominent manufacturer of Detroit, has done a number of things which bring him admiration from many sections of the American public. His interests, both personal and delegated, are multifarious, ranging all the way from transportation of living Americans to the preservation of relics of bygone generations. But there is one thing bearing his name which has been started and apparently has grown to considerable stature without his personal supervision. Something should be done about it.

We refer to the Ford apprentice school at the Detroit plant. In a description which has just come to hand is found this "Typical Questionnaire on 'Materials Used in Tool Room'", a questionnaire "to check

up a boy's knowledge." Here are some of the 83 questions asked:

33. Define steel.
12. What kind of steel is best suited for abrasion, impact and fatigue?
59. Which structure in steel is best, coarse or fine?
24. Name three "functions" of the blast furnace.
36. What effect has manganese on steel?
54. When is high-carbon tool steel used to best advantage?
65. What is martensite?

Now, Mr. Ford! Aren't these pretty stiff questions to put to a lad who has been fed some information on "Materials Used in Tool Room"? Professor Sauveur and Doctor Jeffries might be paged for an answer to No. 33 and No. 65, but it would surpass even their wits to know what a blast furnace has to do with a tool room. Something Edisonian in these and other questions makes us think of another and a much controverted test of intelligence, so called.

Or maybe—remembering that Mr. Ford has caused deep researches into the authorship of "Mary had a little lamb" and has verified the authenticity of the celebrated incident—maybe Mr. Ford has had some original investigations made on these matters which have so simplified and even standardized them that a tool-room clerk can grasp them. If so, pray tell us, Mr. Ford, for we have always wondered what kind of steel is best for abrasion, impact and fatigue, ever since the days when some of us helped harden rock drills.

### Business and Stock Market Loans

SOME of the discussion over the large amount of borrowings by stock brokers has not given due weight to the influence of the rise in "big business." We have not fully correlated our knowledge. Constantly it is being said that big business is spreading. Now, big business does not borrow money; it lends money. The brokers' loans so much talked of and frequently criticized are largely loans for the carrying of shares of big business. What is more natural? Big business built up great reserves of liquid capital; it must keep the capital liquid and these loans are a good medium. Here are two things that have grown and their natural relation has been overlooked in some quarters.

One criticism of loans on stocks and bonds is that they reduce the opportunity of commerce to borrow money. But we have had two great trends. First, there is the expansion of big business, which lends instead of borrows, and if this expansion has been as large as is assumed, it involves a decrease in the borrowing requirements of business that is not big. Second, we have the great reduction in inventory by practically every one, correspondingly reducing the need of borrowing on the part of smaller business and increasing the amount of loanable funds of big business. An item worth considering in this connection is the movement in the steel trade whereby sellers who have been giving 2 per cent cash discount are disposed to reduce the discount to one-half of 1 per cent.

We shall do well to remind ourselves that this "boom" in the stock market, as it is still called, was originally called "the Coolidge boom." It was sup-



posed to be related to a conviction arising nearly four years ago that there was no danger that Mr. Coolidge would fail to be elected. When practically four years have elapsed there must be much more in it than that. As was pointed out in this department of THE IRON AGE last week, our stock market has become to a degree an intelligent and discriminating affair. There is confidence in the economic outlook. When money rates tighten, some who wish to borrow to carry shares in anticipation of higher values later may not do so, but others who have capital will in time take their place.

It would be foolish to attempt to argue that danger of a stock market collapse has been permanently removed, but it is proper to reflect upon the source of much of the money now being loaned in Wall Street, capital of large corporations whose managements certainly do not want to see their shares caught in a slump. While they may like to have their liquid capital earn a somewhat better return, they surely will be anxious and able to prevent such developments going too far.

In its latest bulletin the Cleveland Trust Co. presents two charts giving a broad view, from two separate angles, of the matter of gold, security loans and all other credit. To the layman, who hears these things talked of from divergent angles and may have difficulty in deciding which is the proper basis for making comparisons, the difference in appearance of these two charts is very helpful. Both charts cover six and a half years, from the beginning of 1922. Both depict gold supply, security loans and all other loans. One deals with relatives and takes 1923 at 100, showing security loans mounting much more rapidly than other credit. Whereas security loans start from less than 90 and wind up at over 180, other credit starts above 90 and ends at 125. Here is apparently a startling difference; but the other chart is quantitative instead of relative and looks quite different. The total bank credit rises moderately and the security loans are small relative to other bank credit, their proportion to the latter merely increasing somewhat. Either diagram alone would give the layman quite a different impression from that given by the other.

## Will Latin American Trade Further Increase?

Chilean Ambassador Thinks Continued Growth an Expression of American Potentiality Rather Than Post-War Boom

ANSWERING the question, "Is the financial and commercial expansion of the United States a consequence of the war?" with an emphatic negative, Ambassador Carlos G. Davila of Chile looks upon the continued growth of trade with South America as a certainty. He regards as a normal phenomenon the continued growth of our trade which now enables us to furnish 39 per cent of the total imports of 20 Latin-American Republics, a greater proportion than United Kingdom, Germany and France combined.

"Precisely those years of rapid development that followed the war are those that serve best to illustrate that the commerce of the United States with the nations to the south has not for its basis the unstable factor of the post-war boom, but those factors which create a normal expansion in the commerce of a country: interior wealth, organization, rapid transportation, and productive technic," writes Senor Davila. "And it may also be observed here, that perhaps the dangers to this commerce from the post-war boom were much greater than the benefits. This exaggerated and speculative increase of the 1920-22 period surprised this country without the preparation necessary for adaptation, and launched it into profitable non-competitive markets, which could have created discredit and serious obstacles for the future and normal expansion of its commerce with Latin America. Happily, the period of readjustment that followed demonstrated the capacity of the American exporters to adapt themselves to the situation and to hold their advance in those markets. Furthermore, the reestablishment of the competitive situation between the United States and Europe is beneficial for this country as well as for ours. For ours, because it offers better opportunities of securing quality and of assuring low prices; for the United States, because competition gives a truly solid basis to its commerce, and creates impulses of continuous betterment that are indispensable for its prosperity.

"If we might draw a line to demonstrate the import and export commerce between the United States and Latin

America from 1913-14 to 1927, we should find a continuous and firm increase. It is evident that the war gave a tremendous impetus, but it may be observed that this maximum figure of the war period is \$10,000,000 less than the figure for 1927. It was in the period of feverish activity which followed the war that American commerce with our countries reached a fantastic figure which can be explained only by world speculation, the general inflation of values, and many other factors of commercial exaltation which characterized this post-war period.

"It is easy to note that the greater part of this commerce had a false and temporary basis, and so it may be said that the fall of 1920 to 1922 was as lightning-like as the rise. And here is where it may be clearly proved that the increase of commerce between the United States and the Republics of Latin America follows a normal development even today, in the same terms and proportions as in the years previous to the war.

"After the low post-war figure marked by 1922 trade with Latin America has gained back its normal line of development in the last five years. This is a decided refutation of the idea so strangely generalized that its increase was a consequence of the war, that is to say, due more to the weakness of Europe than to the economic potentiality of the United States."

According to the 1928 edition of the "Tractor Field Book," published by *Farm Implement News*, Chicago, the number of tractors in use on farms in the United States has increased 260,662 in the last five years, the 1928 estimate being 768,825. Increases were shown in every State except Montana. In 1925, according to the Bureau of Census, the total value of farm equipment in the United States was \$2,691,704,000, an average of \$6.87 per acre of crop land. The book contains specifications for various types of farm implements and classified directories of parts, materials, etc.



## Analysis of Value of Mergers

The opinions regarding mergers of some 200 commercial and investment bankers were recently collected and analyzed by the Sherman Corporation, 292 Madison Avenue, New York, doing a business as engineer and business manager. Section one of a report, covering the current trend toward mergers and consolidations, has been issued and draws a number of conclusions, including this:

"The potential advantages to be gained from sound merger are today more in distribution than production and perhaps the factor of greatest possible advantage is reduction of selling costs through elimination of duplications in salesmen covering the same territory."

Other advantages proved are: Reduction of costs and overheads; reduction of prices to the consumer; broadened markets; the combination of diversified qualities of managerial abilities in a strong, cohesive organization, etc.

## Optical Company Celebrates Seventy-fifth Anniversary

The seventy-fifth anniversary of the Bausch & Lomb Optical Co., Rochester, N. Y., is being celebrated this year. The company was started in 1853 by John Jacob Bausch, who came to this country from Germany in 1849. Henry Lomb, who also came to the United States from Germany in the same year, later became associated with Mr. Bausch as a partner. The early difficulties encountered and the manner in which these were overcome are given in detail in the anniversary number of the company's magazine for July-August. It is attractively illustrated.

## Gives Reasons for Lower Sheet Discount

In announcing that, effective on business placed for shipment after Sept. 30, the cash discount will be  $\frac{1}{2}$  of 1 per cent for payment in 10 days from date of invoice instead of 2 per cent as heretofore, the American Sheet & Tin Plate Co. says:

"In making this change in our policy we are not unmindful of certain benefits to be derived from a high discount rate, but the condition of the sheet metal business from the manufacturer's standpoint is so unsatisfactory that a high premium for prompt payment can no longer be made.

"There have been heavy reductions in the selling prices of sheets, but, in spite of these, there has been no change in our wage rates, or reduction in the quality of our products. Users of our material are obtaining better service than ever before and are no longer required to carry heavy stocks. These conditions have placed a burden upon the manufacturer

which compels him to look for other legitimate means of protecting his investment, and one of the most logical methods is presented in a reduction of our cash discount from an amount which economic conditions have not warranted for many years past.

"This applies only to sheet mill products and tin mill black plate."

## Ohio River Steel Shipments 90,145 Tons in July

The monthly report of the United States Engineers Corps, Pittsburgh office, shows that 90,145 net tons of steel products were moved on the Ohio River during July. That total compares with 96,156 tons in June and 112,818 tons in May. For the seven months ended with July, 644,805 tons of steel products moved on the Ohio River, an average of 92,115 tons per month. In the same period in 1927 the total was 287,677 tons, a monthly average of 41,099 tons.

While the Ohio River figures include some interplant movements, they are primarily a picture of the shipments of finished steel products to lower Ohio and Mississippi River points that go by water, because water rates are much less than those of the railroads.

## Tennant Steel Plant to Move to Portland

Tennant Steel Corporation, of which M. G. Tennant, mayor of Tacoma, Wash., is president, will move its plant at Vancouver, Wash., to Portland, Ore., where special attention will be given to alloy steel work. It is announced that two furnaces will be in operation shortly in the new location, and about 50 men will be employed. Harry E. Spieth is manager of the Portland plant. The Tennant Corporation of Washington has plants at Tacoma, Seattle and Everett. Mr. Tennant is president and general manager of the Oregon corporation and M. S. Alexander is assistant manager.

## New Film on the Story of Rail Steel

"The Story of Rail Steel," an educational film in three reels produced by the Rail Steel Bar Association, has been released for distribution to architects, engineers, contractors, building officials, engineering students and all those interested in the relation of the steel industry to reinforced concrete construction. It will find considerable use by societies and universities at meetings, conventions and seminars.

The picture shows the manufacture of concrete reinforcement bars, portraying each consecutive operation, from the refining of pig iron to the final use of the bars in reinforced concrete construction. The supplying of the film is one of the educational

activities of the Rail Steel Bar Association, whose offices are in the Builders Building, Chicago, the members of which include rolling mills of the United States and Canada, in part as follows:

Buffalo Steel Co., Tonawanda, N. Y.; Burlington Steel Co., Hamilton, Ont.; Calumet Steel Co., Chicago; Canadian Tube & Steel Products, Ltd., Montreal, Que.; Connors Steel Co., Birmingham; Danville Structural Steel Co., Danville, Pa.; Franklin Steel Works, Franklin, Pa.; Laclede Steel Co., St. Louis; Missouri Rolling Mill Corporation, St. Louis; Pollak Steel Co., Cincinnati; West Virginia Rail Co., Huntington, W. Va.

## State Department to Buy Sheet Steel Buildings

Bids will be opened Aug. 29, by the Pennsylvania Department of Highways, Harrisburg, on 23 steel storage buildings to be erected at Butler, Erie, Franklin, Clarion, Clearfield, Towanda, Montoursville, Danville, Pottsville, Selinsgrove, Chinchilla, East Stroudsburg, Honesdale, Beaver, Holidaysburg, Ebensburg, Huntingdon, Indiana, Somerset, York and Media. All buildings are to be 40 x 128 ft., except two at York, which are to be 40 x 112 ft. Suitable foundations for the buildings will be furnished by the Department of Highways.

Bidders for these contracts are required to submit, in addition to designs, shop drawings and illustrations of the buildings, samples of the sheets it is proposed to use, such samples to be not less than 1 ft. square. The successful bidder will be required to include in each shipment of material an extra sheet, so that a sample may be selected at random and used for test.

## Linde and Prest-O-Lite Build New Plants

Six new plants for manufacturing cutting and welding gases have been put into operation since July. Four of these are new oxygen-producing plants of Linde Air Products Co. and are located at Harrisburg, Pa., Allentown, Pa., Shreveport, La., and Charleston, W. Va. This makes a total of 52 oxygen plants operated by the Linde company. A separate plant for producing dissolved acetylene has also been erected at the first two localities above mentioned by Prest-O-Lite Co., an associated organization.

Competitive examinations for junior metallurgists, with an entrance salary of \$2,000, are announced by the United States Civil Service Commission. Application must be filed before Sept. 25 with the commission in Washington. Full information may be obtained from the commission or from the board of examiners at the post office or customs house in any city.

# Iron and Steel Markets

## Market Strength Broadens

Upward Price Trend Extends from Finished Steel to Semi-Finished Products and Primary Materials—Pig Iron Advanced at Cleveland—37,000 Tons of Steel Placed for Pipe Line

THE iron and steel market shows evidences of growing strength in virtually all products, from finished steel to semi-finished products and primary materials.

Pig iron prices, which have been on a downward trend since the middle of March, are stiffening, notably in the Central West. Cleveland producers have raised prices 50c. a ton on foundry iron for shipment to outlying districts, and an advance by Chicago furnaces is expected shortly.

In the Valleys, prices on both basic and foundry iron are firmer and inquiries have been issued by four large melters. Steel companies that ordinarily market surplus iron are no longer seeking business, and one steel interest, finding its own pig iron output short of its requirements, is regarded as a probable buyer. A factor contributing to the revival of interest in basic iron is the recent sharp advance in scrap and its continued scarcity at higher levels.

Sales of merchant pig iron by Cleveland producers totaled 63,000 tons, following bookings of 84,000 tons in the previous week, and Chicago furnaces sold 50,000 tons. Several Central Western stacks are so well booked that they are out of the market for the rest of the year. Two merchant furnaces have been blown in, one at Dubois, Pa., and another at Buffalo, while the lighting of a stack at Chicago is an early possibility.

Price strength extends to furnace coke at Connellsville, which has been favorably affected by a second draft on the spot supply of beehive fuel by a steel producer.

Steel production continues at close to 85 per cent of capacity in the Greater Pittsburgh district and at a 75 per cent rate at Chicago. The average for all Steel Corporation subsidiaries is 77 per cent. New business is light in all products except pipe, but this is not surprising, since consumers are well covered for this quarter. Measured by specifications against contracts, the market is active. Shipping orders for bars and sheets are particularly heavy, and releases of hot and cold-rolled strip steel leave little to be desired.

The sustained volume of mid-season activity has given producers increasing confidence. Most producers of sheets, including the leading interest, have adopted the advances for fourth quarter recently announced, and virtually all sheet and strip mills have reduced the discount for cash payment to one-half of 1 per cent. In addition, sheet mills at Chicago are adding an extra of 10c. per 100 lb. for orders of less than 100 tons.

Bookings of the American Sheet & Tin Plate Co. were the largest for any week since late in 1925, and

independent sheet producers appear to have done correspondingly as well. Whether heavy specifying can be attributed to the lower discount, which becomes effective Oct. 1, or to the clause in third quarter contracts cancelling tonnage not released by Sept. 10 is not clear. Indeed, the Pittsburgh view is that neither of these factors is an important influence. Little evidence that consumers are stocking is seen, and current activity is ascribed to an unusually well-maintained rate of consumption.

That there will be general insistence on the Sept. 10 clause (which has been inserted in third quarter contracts for bars, plates and shapes, as well as for sheets) is indicated by current reports. Buyers who have specified their September quotas with instructions to ship in the last week of that month have met with refusals. The mills propose to ship at their convenience on or after Sept. 10, to protect themselves from the customary carryover tonnage that has resulted from heavy shipping orders in the closing week of a quarter.

Price advances have been announced in cold-rolled strips and sheet bars. The latter product has been raised \$1 a ton to \$33, Youngstown, by a Valley maker, for fourth quarter delivery, and a leading producer of cold-rolled strips has announced an advance, effective immediately, of \$2 to \$4 a ton above recently prevailing prices. Ground shafting was marked up \$2 a ton, effective Aug. 15.

Pending tests of prices announced for fourth quarter, the growing strength of the current market is attested by bids on 25,000 tons of plates, shapes and bars for the Pennsylvania Railroad, which brought out minimum quotations of 1.90c. from Pittsburgh and Ohio mills and 2.10c. from Chicago district producers.

An order for 37,000 tons of 18-in. pipe has been placed for a gas line to run from Fowler, La., to Memphis, Tenn. For an oil line from Oklahoma to Whiting, Ind., for the Sinclair Pipe Line Co., 42,000 tons of 8, 10 and 12-in. pipe will be required.

Structural steel contracts amounting to 53,000 tons include 20,000 tons for a Brooklyn department store and 10,500 tons for Mississippi River barges. At Oakland, Cal., bids are in on 7200 tons of fabricated steel pipe for water mains; alternate bids were taken on 22,000 tons of cast iron pipe.

Unfilled orders of independent sheet mills on Aug. 1 were 550,468 tons, or nearly double the shipments of 278,310 tons in July. The gain in sheet sales in July was 14,455 tons over June, while production fell off 40,000 tons. Sales for the month exceeded shipments by 57,047 tons.



# A Comparison of Prices

Advances Over the Previous Week in Heavy Type, Declines in Italics  
At Date, One Week, One Month, and One Year Previous

Pig Iron, Per Gross Ton:	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
No. 2 fdy., Philadelphia.....	\$20.26	\$20.26	\$20.26	\$20.76
No. 2, Valley furnace.....	16.50	16.50	16.50	17.50
No. 2, Southern, Cin'ti.....	19.19	19.19	19.19	20.94
No. 2, Birmingham.....	15.50	15.50	15.50	17.25
No. 2 foundry, Chicago*.....	17.50	17.50	17.50	19.50
Basic, del'd eastern Pa.....	19.00	19.00	19.00	20.00
Basic, Valley furnace.....	16.00	16.00	16.00	17.25
Valley Bessemer, del'd P'gh....	18.76	18.76	18.76	20.26
Malleable, Chicago*.....	17.50	17.50	17.50	19.50
Malleable, Valley.....	17.00	17.00	17.00	17.50
Gray forge, Pittsburgh.....	18.01	18.01	18.01	18.76
L. S. charcoal, Chicago.....	27.04	27.04	27.04	27.04
Ferromanganese, furnace.....	105.00	105.00	105.00	90.00

Rails, Billets, etc., Per Gross Ton:	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
O.-h. rails, heavy, at mill.....	\$43.00	\$43.00	\$43.00	\$43.00
Light rails at mill.....	36.00	36.00	36.00	36.00
Bess. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O.-h. billets, Pittsburgh.....	32.00	32.00	32.00	33.00
O.-h. sheet bars, P'gh.....	32.00	32.00	32.00	34.00
Forging billets, P'gh.....	38.00	38.00	38.00	39.00
O.-h. billets, Phila.....	37.30	37.30	37.30	38.30
Wire rods, Pittsburgh.....	42.00	42.00	42.00	43.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.....	1.90	1.90	1.85	1.80

Finished Iron and Steel,	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Iron bars, Philadelphia.....	2.12	2.12	2.12	2.12
Iron bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, Pittsburgh.....	1.90	1.90	1.85	1.80
Steel bars, Chicago.....	2.00	2.00	2.00	2.00
Steel bars, New York.....	2.24	2.24	2.19	2.14
Tank plates, Pittsburgh.....	1.90	1.90	1.85	1.80
Tank plates, Chicago.....	2.00	2.00	2.00	1.90
Tank plates, New York.....	2.17½	2.17½	2.17½	2.09
Beams, Pittsburgh.....	1.90	1.90	1.85	1.80
Beams, Chicago.....	2.00	2.00	2.00	1.90
Beams, New York.....	2.14½	2.14½	2.14½	1.95
Steel hoops, Pittsburgh.....	2.20	2.20	2.20	2.30

\*The average switching charge for delivery to foundries in the Chicago district is 61c. per ton.

On export business there are frequent variations from the above prices. Also, in domestic business, there is at times a range of prices on various products, as shown in our market reports on other pages.

Sheets, Nails and Wire,	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Sheets, black, No. 24, P'gh....	2.65	2.65	2.60	3.00
Sheets, black, No. 24, Chicago	2.75	2.75	2.75	3.10
dist. mill.....	3.40	3.40	3.40	3.85
Sheets, galv., No. 24, P'gh....	3.60	3.60	3.60	3.95
dist. mill.....	2.00	2.00	2.00	2.25
Sheets, blue, 9 & 10, P'gh....	2.10	2.10	2.10	2.35
dist. mill.....	2.55	2.55	2.55	2.55
Wire nails, Pittsburgh.....	2.60	2.60	2.60	2.60
Wire nails, Chicago dist. mill..	2.40	2.40	2.40	2.40
Plain wire, Pittsburgh.....	2.45	2.45	2.45	2.45
Barbed wire, galv., Pittsburgh.	3.20	3.20	3.20	3.25
Barbed wire, galv., Chicago	3.25	3.25	3.25	3.30
dist. mill.....	\$5.25	\$5.25	\$5.25	\$5.50
Tin plate, 100 lb. box, P'gh....				

Old Material, Per Gross Ton:	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
Heavy melting steel, P'gh....	\$15.50	\$15.50	\$14.25	\$15.50
Heavy melting steel, Phila....	13.00	13.00	13.00	14.00
Heavy melting steel, Ch'go....	12.75	12.75	12.25	12.00
Carwheels, Chicago.....	12.75	12.75	12.75	14.50
Carwheels, Philadelphia.....	15.50	15.50	15.50	15.50
No. 1 cast, Pittsburgh.....	14.50	14.50	14.25	15.00
No. 1 cast, Philadelphia.....	15.50	15.50	15.50	16.00
No. 1 cast, Ch'go (net ton)....	14.00	14.00	13.50	14.75
No. 1 RR. wrot., Phila.....	13.50	13.50	13.50	15.50
No. 1 RR. wrot., Ch'go (net)..	11.25	11.00	10.75	11.50

Coke, Connellsville, Per Net Ton at Oven:	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
Furnace coke, prompt.....	\$2.75	\$2.75	\$2.60	\$3.00
Foundry coke, prompt.....	3.75	3.75	3.75	4.00

Metals,	Aug. 21, 1928	Aug. 14, 1928	July 24, 1928	Aug. 23, 1927
Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Lake copper, New York.....	14.75	14.75	14.75	13.25
Electrolytic copper, refinery....	14.50	14.50	14.50	12.87½
Zinc, St. Louis.....	6.25	6.25	6.20	6.32½
Zinc, New York.....	6.60	6.60	6.55	6.67½
Lead, St. Louis.....	6.00	6.00	6.00	6.30
Lead, New York.....	6.20	6.20	6.20	6.65
Tin (Strait), New York.....	47.87½	48.25	48.00	63.75
Antimony (Asiatic), N. Y.....	10.25	10.00	9.37½	11.62½

## Pittsburgh

### Increasing Demand for Steel Encourages Stronger Price Stand on Various Products for Fourth Quarter

PITTSBURGH, Aug. 21.—Steel business continues good, and with productive capacity holding to the high rate of engagement recently attained, steel companies are giving more attention to the consolidation of their gains. In addition to the fact that several other makers have followed the lead of the Youngstown Sheet & Tube Co. in raising fourth quarter sheet prices, the recent advance on cold-finished steel bars has become more general and makers of cold-rolled strips will ask from \$2 to \$4 a ton more for fourth quarter tonnages than they are getting on current shipments. More sheet and cold-rolled strip makers are falling in line with the reduced cash discount plan and makers of semi-finished steel and of bars, plates, shapes, hoops and bands are following the Carnegie Steel Co. in the imposition of charges where there is an extra production cost for special elements such as silicon, carbon, manganese, phosphorus, etc. Taking the market as a whole, the weak spots are few and the desire for prices that will net a fair return is stronger and more general than it has been in a long time.

New business is light in all products except pipe, structural shapes on projects that recently have arisen and plates for river barges, but with consumers enjoying very complete coverage for this quarter any other condition would be unusual. As reflected by specifications, the market is really active and only a few products are not sharing. Bar and sheet specifications are particularly heavy and those for strips, both hot and cold-rolled,

leave little to be desired. One local maker of strips finds this month's releases to have been equal to 90 per cent of capacity, against 75 per cent in July. Tin plate specifications are beginning to falter and some letdown in mill operations appears likely in October.

There is not only a continuance of the urgent demand for seamless pipe for California oil fields, but continued activity in line pipe. One order for

36,000 tons is on mill books and another for 42,000 tons of seamless pipe is in prospect.

In view of the contract provision setting Sept. 10 as the last day on which specifications may be entered against third quarter contracts for bars, plates, shapes and sheets and also because buyers of sheets, including tin mill black plate and cold-rolled strips, have only a little more than a month in which to enjoy the 2 per cent discount for cash payment of invoices, there is a suggestion that these factors possibly are influencing the present and unusual midsummer activity, but there is no evidence that consumers are stocking, and more commonly the activity is ascribed to an unusually well maintained rate of actual consumption. The steel market in the final quarter of the year therefore is not in danger of feeling a liquidating movement and, if it quiets down, it will be a reflection of lessened consumption.

The Pittsburgh valley pig iron market finally has caught the swing of other markets and if no more active in point of sales, it is in point of interest by consumers and in showing a stronger tendency. The scrap market has lost some of its recent tenseness, but supplies still are scant and prices very firm.

**Pig Iron.**—This market finally has begun to reflect the activity and strength of outside markets, and while actual sales of the past week showed no appreciable increase over those of the week before, inquiries are much more numerous. Basic iron, after several weeks of inactivity, now is being sought by the Allegheny Steel Co., the Edgewater Steel Co., the American Steel Foundries for its Alliance, Ohio, works, and it is understood that the Central Alloy Steel Corporation is finding its own production insufficient for its requirements and is a probable buyer. No specific tonnages are mentioned in these inquiries, but based upon the usual takings, it is believed that fully 20,000 tons will be wanted. Steel companies, which ordinarily have some surplus iron for market, are so heavily engaged and are using so much of their production that there is not the recent eagerness for business. As regular merchant producers are not anxious to sell at current prices, the feeling is that these several inquiries will produce higher prices. Scrap has not only had a steep advance over the past few weeks, but is anything but plentiful at the higher levels. This is believed to be a factor in the revived interest in basic iron. A sale of 1000 tons of basic iron to a Middle interest at \$16, Valley furnace, is reported. The Standard Sanitary Mfg. Co. has entered the market for the third quarter requirements of its several plants and is expected to close before another week passes. No definite tonnage is mentioned, but it is assumed that this company will buy all the iron that is offered at what it considers a reasonable figure. With Lake front furnaces well sold up and no longer actively seeking business in the territory tributary to the Valley furnaces, a tendency toward strength is noted in foundry iron. While on current business, \$16.50, Valley furnace, for No. 2 grade still is being done, producers are trying to secure more on iron for later shipment. One company is quoting \$16.75 for No. 2, \$17 for No. 2X and \$17.50 for No. 1X. A Titusville, Pa., melter recently closed for approximately 1000 tons of foundry iron; Valley fur-

naces which shared in this business were obliged to equalize a lower freight rate from Erie. The Carnegie Steel Co. has taken off the one Isabella furnace it had in blast. The Trumbull-Cliffs furnace, Warren, Ohio, is about to be blown out for repairs and relining.

Prices per gross ton, f.o.b. Valley furnace:	
Basic .....	\$16.00
Bessemer .....	17.00
Gray forge .....	\$16.25 to 16.50
No. 2 foundry .....	16.50 to 16.75
No. 3 foundry .....	16.25 to 16.50
Malleable .....	17.00
Low phos., copper free....	26.50

Freight rate to Pittsburgh or Cleveland district, \$1.76.

**Ferroalloys.**—The report still is of a good movement on contracts, but a minimum of new business because consumers generally are so well covered by contracts. Prices are unchanged.

**Semi-Finished Steel.**—Shipments of sheet bars on contracts still are heavy, since sheet and tin mills continue to operate at a high rate and specifications for the finished products are large. Quickening of the operations of strip mills is reflected in an increased movement of billets and slabs. New business in these forms, however, still is light and no negotiations yet have been started for fourth quarter tonnages. The Youngstown Sheet & Tube Co. has named \$33, Youngstown, as its fourth quarter price on sheet bars, and Pittsburgh makers will probably name the same price f.o.b. Pittsburgh. This is an advance of \$1 a ton, and a similar advance in billets and slabs is in prospect. A card of chemical extras covering semi-finished steel has been issued. Wire rods are firm at \$42, base, Pittsburgh or Cleveland. Skelp is moving fairly well on contracts, but there is not much open market activity.

**Bars, Plates and Shapes.**—Consumers of bars are taking shipments freely against third quarter commitments, and as the mills still are adhering firmly to their intention to cancel tonnages for this quarter not specified by Sept. 10, it begins to look as if there would be much less of a carryover of third quarter business into the final quarter of the year than was true of first and second quarter contracts. As matters have been in the past year or so, a quarterly con-

tract actually has given buyers four months' protection, since it has been possible for buyers to wait until the last day of the last month of a quarterly period before putting in specifications. The mills also are insisting upon specifications by Sept. 10 on shapes and plates, with an idea of cleaning their books of third quarter business as promptly as possible after Oct. 1. Structural lettings in this area continue small, but three local barge builders will share in the award of 92 barges for the Mississippi River Commission, calling for 11,000 tons. Current business is moderate as few buyers are unprotected against their requirements for this quarter. Such new business as is being done in bars and shapes is at 1.90c., base Pittsburgh. Plates also have been sold at that price, but in the gages and sizes competitive with the product of strip and sheet mills even 1.85c., base, has been hard to obtain.

**Rails and Track Supplies.**—This is usually a quiet period in rails and track fastenings and this year is no exception. Prices show no change, but there is some weakening in the stand of makers for the extra of \$5 a ton on less than carload lots of spikes.

**Wire Products.**—Business is better than it has been, but is not active and the firmness of prices still stands out as the interesting feature of the situation.

**Tubular Goods.**—The National Tube Co. has taken an order for 218 miles of 18-in. pipe for gas line to run from the Monroe, La., field to Memphis, Tenn. This means approximately 36,000 tons. Between line pipe business and a continued insistent demand for seamless pipe for oil well work from California and a good demand for the latter for the Seminole, Okla., field, the pipe makers are enjoying comparatively good times. Welded oil country pipe is not moving with much vigor and demand for butt-weld pipe is better described as steady than as active. Competition for pipe line business is keen and prices are favorable to buyers, but in other classes the market is firm and the secondary market is reported to be more stable than it was a few months ago. The Sinclair Pipe

## THE IRON AGE Composite Prices

### Finished Steel

Aug. 21, 1928, 2.348c. a Lb.

One week ago.....	2.348c.
One month ago.....	2.319c.
One year ago.....	2.367c.
10-year pre-war average.....	1.689c.

Based on steel bars, beams, tank plates, wire, rails, black pipe and black sheets. These products constitute 87 per cent of the United States output of finished steel.

	High		Low	
1928	2.364c.	Feb. 14:	2.314c.	Jan. 3
1927	2.453c.	Jan. 4:	2.293c.	Oct. 25
1926	2.453c.	Jan. 5:	2.403c.	May 18
1925	2.560c.	Jan. 6:	2.396c.	Aug. 18
1924	2.789c.	Jan. 15:	2.460c.	Oct. 14
1923	2.824c.	Apr. 24:	2.446c.	Jan. 2

### Pig Iron

Aug. 21, 1928, \$17.04 a Gross Ton

One week ago.....	\$17.04
One month ago.....	17.04
One year ago.....	18.13
10-year pre-war average.....	15.72

Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Birmingham.

	High		Low	
1928	\$17.75,	Feb. 14:	\$17.04,	July 24
1927	19.71,	Jan. 4:	17.54,	Nov. 1
1926	21.54,	Jan. 5:	19.46,	July 13
1925	22.50,	Jan. 13:	18.96,	July 7
1924	22.88,	Feb. 26:	19.21,	Nov. 3
1923	30.86,	Mar. 20:	20.77,	Nov. 20



# Mill Prices of Finished Iron and Steel Products

## Iron and Steel Bars

### Soft Steel

	Base Per Lb.
F.o.b. Pittsburgh mill.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
Del'd Philadelphia.....	2.17c. to 2.22c.
Del'd New York.....	2.19c. to 2.24c.
Del'd Cleveland.....	2.04c. to 2.09c.
F.o.b. Cleveland.....	1.85c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c.
C.i.f. Pacific ports.....	2.35c.
F.o.b. San Francisco mills.....	2.35c. to 2.40c.

### Billet Steel Reinforcing

F.o.b. Pittsburgh mills.....	1.95c. to 2.00c.
F.o.b. Birmingham.....	2.05c. to 2.15c.

### Rail Steel

F.o.b. mills east of Chicago district.....	1.75c.
F.o.b. Chicago Heights mill.....	1.85c.

### Iron

Common iron, f.o.b. Chicago.....	2.00c.
Refined iron, f.o.b. P'gh mills.....	2.75c.
Common iron, del'd Philadelphia.....	2.12c.
Common iron, del'd New York.....	2.14c.

## Tank Plates

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.10c. to 2.15c.
F.o.b. Coatesville.....	2.00c. to 2.05c.
F.o.b. Sparrows Point.....	2.00c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
Del'd New York.....	2.17½c. to 2.22½c.
C.i.f. Pacific ports.....	2.25c. to 2.30c.

## Structural Shapes

	Base Per Lb.
F.o.b. Pittsburgh mills.....	1.85c. to 1.90c.
F.o.b. Chicago.....	2.00c.
F.o.b. Birmingham.....	2.05c.
F.o.b. Lackawanna.....	1.95c. to 2.00c.
F.o.b. Bethlehem.....	2.00c. to 2.05c.
Del'd Cleveland.....	2.04c. to 2.09c.
Del'd Philadelphia.....	2.01c. to 2.18c.
Del'd New York.....	2.14½c. to 2.19½c.
C.i.f. Pacific ports.....	2.35c.

## Hot-Rolled Flats (Hoops, Bands and Strips)

	Base Per Lb.
Narrower than 3 in., P'gh.....	2.10c. to 2.20c.
From 3 in. to 6 in., P'gh.....	1.85c. to 2.00c.
6 in. and wider, P'gh.....	*1.75c. to 1.90c.
Narrower than 3 in., Chicago.....	2.30c.
From 3 to 6 in., Chicago.....	2.20c.
6 in. and wider, Chicago.....	2.00c.
Cotton ties, f.o.b. Atlantic and Gulf ports:	
Carlots per 45-lb. bundle.....	\$1.27
2000 bundle lots.....	1.25
Larger lots.....	1.23

\*Mills follow plate or sheet prices according to gage on wider than 12 in.

## Cold-Finished Steel

	Base Per Lb.
Bars, f.o.b. Pittsburgh mills.....	2.10c. to 2.20c.
Bars, f.o.b. Chicago.....	2.20c.
Bars, Cleveland.....	2.15c. to 2.25c.
Shafting, ground, f.o.b. mill.....	*2.55c. to 3.50c.
Strips, P'gh.....	2.65c. to 2.85c.
Strips, 1 up to 3 tons, Cleveland.....	2.90c.
Strips, 1 up to 3 tons, del'd Chicago.....	3.30c.
Strips, 1 up to 3 tons, Worcester.....	3.15c. to 3.30c.
Fender stock, Pittsburgh.....	4.10c.

\*According to size.

## Wire Products

(To jobbers in car lots, f.o.b. Pittsburgh and Cleveland)

	Base Per Keg
Wire nails.....	\$2.55
Galvanized nails.....	4.55
Galvanized staples.....	3.25
Polished staples.....	3.00
Cement coated nails.....	2.55

### Base Per 100 Lb.

Bright plain wire, No. 9 gage.....	\$2.40
Annealed fence wire.....	2.55
Spring wire.....	3.40
Galv'd wire, No. 9.....	3.00
Barbed wire, galv'd.....	3.20
Barbed wire, painted.....	2.95
Chicago district mill and delivered Chicago prices are \$1 per ton above the foregoing. Birmingham mill prices \$3 a ton higher; Worcester, Mass., (wire) mill \$3 a ton higher on production of that plant; Duluth, Minn., mill \$2 a ton higher; Anderson, Ind., \$1 higher.	

## Woven Wire Fence

### Base to Retailers Per Net Ton

F.o.b. Pittsburgh.....	\$65.00
F.o.b. Cleveland.....	65.00
F.o.b. Anderson, Ind.....	66.00
F.o.b. Chicago district mills.....	67.00
F.o.b. Duluth.....	68.00
F.o.b. Birmingham.....	68.00

## Sheets

### Blue Annealed

	Base Per Lb.
Nos. 9 and 10, f.o.b. P'gh.....	2.00c. to 2.10c.
Nos. 9 and 10, f.o.b. Chicago dist. mill.....	2.10c. to 2.20c.
Nos. 9 and 10, del'd Cleveland.....	2.09c. to 2.19c.
Nos. 9 and 10, del'd Philadelphia.....	2.32c. to 2.42c.
Nos. 9 and 10, f.o.b. Birmingham.....	2.20c.

### Box Annealed, One Pass Cold Rolled

No. 24, f.o.b. Pittsburgh.....	2.65c. to 2.75c.
No. 24, f.o.b. Chicago dist. mill.....	2.75c. to 2.85c.
No. 24, del'd Cleveland.....	2.74c. to 2.84c.
No. 24, del'd Philadelphia.....	2.97c. to 3.07c.
No. 24, f.o.b. Birmingham.....	2.90c.

### Metal Furniture Sheets

No. 24, f.o.b. Pittsburgh, A grade.....	3.85c. to 3.90c.
No. 24, f.o.b. Pittsburgh, B grade.....	3.65c. to 3.70c.

### Galvanized

No. 24, f.o.b. Pittsburgh.....	3.40c. to 3.60c.
No. 24, f.o.b. Chicago dist. mill.....	3.60c. to 3.70c.
No. 24, del'd Cleveland.....	3.54c. to 3.69c.
No. 24, del'd Philadelphia.....	3.72c. to 3.82c.
No. 24, f.o.b. Birmingham.....	3.65c. to 3.70c.

### Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh.....	2.85c. to 2.90c.
No. 28, f.o.b. Chicago dist. mill.....	3.10c.

### Automobile Body Sheets

No. 20, f.o.b. Pittsburgh.....	4.00c.
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### Long Ternes

No. 24, 8-lb. coating, f.o.b. mill primes.....	4.10c.
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### Tin Plate

	Per Base Box
Standard cokes, f.o.b. P'gh district mills.....	\$5.25
Standard cokes, f.o.b. Gary.....	5.35

### Terne Plate

(F.o.b. Morgantown or Pittsburgh)  
(Per package, 20 x 28 in.)

8-lb. coating I.C. \$11.20	15-lb. coating I.C. \$16.70
15-lb. coating I.C. 14.00	30-lb. coating I.C. 17.75
20-lb. coating I.C. 15.30	40-lb. coating I.C. 19.85

## Alloy Steel Bars

(F.o.b. maker's mill)

### Alloy Quality Bar Base, 2.65c.

S.A.E. Series Numbers	Alloy Differential	Net Price 100 Lb. Bars
2000 (½% Nickel).....	\$0.25	\$2.90
2100 (1¼% Nickel).....	0.55	3.20
2300 (3¼% Nickel).....	1.50	4.15
2500 (5% Nickel).....	2.25	4.90
3100 Nickel Chromium.....	0.55	3.20
3200 Nickel Chromium.....	1.35	4.00
3300 Nickel Chromium.....	3.80	6.45
3400 Nickel Chromium.....	3.20	5.85
4100 Chromium Molybdenum (0.15 to 0.25 Molybdenum).....	0.50	3.15
4100 Chromium Molybdenum (0.25 to 0.40 Molybdenum).....	0.70	3.35
4600 Nickel Molybdenum (0.20 to 0.30 Molybdenum, 1.25 to 1.75 Nickel).....	1.05	3.70
5100 Chromium Steel (0.60 to 0.90 Chromium).....	0.35	3.00
5100 Chromium Steel (0.80 to 1.10 Chromium).....	0.45	3.10
5100 Chromium Spring Steel.....	0.20	2.85
6100 Chromium Vanadium Bars.....	1.20	3.85
6100 Chromium Vanadium Spring Steel.....	0.95	3.60
9250 Silicon Manganese Spring Steel.....	0.25	2.90
Chromium Nickel Vanadium.....	1.50	4.15
Carbon Vanadium.....	0.95	3.60

Above prices are for hot-rolled steel bars, forging quality. The ordinary differential for cold-drawn bars is 1c. per lb. higher. For billets 4 x 4 to 10 x 10 in., the price for a gross ton is the net price for bars of the same analysis. For billets under 4 x 4 down to and including 2½ in. squares, the price is \$5 a gross ton above the 4 x 4 billet price.

Slabs with sectional area of 16 in. or over carry the billet price; slabs with sectional area of 12 in. to 16 in. carry a \$5 extra above the billet price and slabs with a sectional area under 12 in. carry the bar price.

Band sizes are 40c. per 100 lb. higher.

## Rails

	Per Gross Ton
Standard, f.o.b. mill.....	\$43.00
Light (from billets), f.o.b. mill.....	36.00
Light (from rail steel), f.o.b. mill.....	34.00
Light (from billets), f.o.b. Ch'go mill.....	36.00

## Track Equipment

### Base Per 100 Lb.

Spikes, ½ in. and larger.....	\$2.80
Spikes, ½ in. and smaller.....	2.80
Spikes, boat and barge.....	3.00
Tie plates, steel.....	2.15
Angle bars.....	2.75
Track bolts, to steam railroads.....	\$3.80 to 4.00
Track bolts, to jobbers, all sizes, per 100 count.....	70 per cent off list

## Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

### Butt Weld

Steel	Black	Galv.	Iron	Black	Galv.
Inches			Inches		
1½.....	45	19½	1½ to ¾.....	+11	+59
1½ to ¾.....	51	25½	¾.....	22	2
1½.....	56	42½	¾.....	28	11
¾.....	60	48½	1 to 1½.....	30	13
1 to 3.....	62	50½			

### Lap Weld

2.....	55	43½	2.....	23	7
2½ to 6.....	59	47½	2½.....	26	11
7 and 8.....	56	43½	3 to 6.....	28	13
9 and 10.....	54	41½	7 to 12.....	26	11
11 and 12.....	53	40½			

### Butt Weld, extra strong, plain ends

1½.....	41	24½	1½ to ¾.....	+19	+54
1½ to ¾.....	47	30½	¾.....	21	17
1½.....	53	42½	¾.....	28	12
¾.....	58	47½	1 to 1½.....	30	14
1 to 1½.....	60	49½			
2 to 3.....	61	50½			

### Lap Weld, extra strong, plain ends

2.....	53	42½	2.....	23	9
2½ to 4.....	57	46½	2½ to 4.....	29	15
4½ to 6.....	56	45½	4½ to 6.....	28	14
7 to 8.....	52	39½	7 to 8.....	21	7
9 and 10.....	45	32½	9 to 12.....	16	2
11 and 12.....	44	31½			

On carloads the above discounts on steel pipe are increased on black by one point, with supplementary discount of 5%, and on galvanized by 1½ points, with supplementary discount of 5%. On iron pipe, both black and galvanized, the above discounts are increased to jobbers by one point with supplementary discounts of 5 and 2½%.

Note.—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

## Boiler Tubes

Base Discounts, f.o.b. Pittsburgh

Lap Welded Steel		Charcoal Iron	
2 to 2½ in.....	27	1½ in.....	+18
2½ to 2¾ in.....	37	1¾ to 1½ in.....	+8
3 in.....	40	2 to 2½ in.....	2
3¼ to 3½ in.....	42½	2½ to 3 in.....	7
4 to 13 in.....	46	3½ to 4½ in.....	9

Beyond the above base discounts, the following extra discounts are given:

Lap Weld Steel		Charcoal Iron
Under 5000 lb..	4 Fives	1 Ten
5000 lb. to 12,000 lb.....	5 Fives	2 Tens
12,000 lb. to 21,000 lb.....	6 Fives	2 Tens & 2½
21,000 lb. and over .....	7 Fives	2 Tens & 5

### Standard Commercial Seamless Boiler Tubes

#### Cold Drawn

1 in.....	63	3 in.....	48
1¼ to 1½ in.....	55	3½ to 3¾ in.....	50
1½ in.....	39	4 in.....	53
2 to 2½ in.....	34	4½, 5 and 6 in.....	45
2½ to 2¾ in.....	42		

#### Hot Rolled

2 and 2½ in.....	40	3½ and 3¾ in.....	56
2½ and 2¾ in.....	48	4 in.....	59
3 in.....	54	4½, 5 and 6 in.....	48

Less carloads, 4 points less. Add \$8 per net ton for more than four gages heavier than standard. No extra for lengths up to and including 24 ft. Sizes smaller than 1 in. and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

## Seamless Mechanical Tubing

Per Cent Off List

Carbon, 0.10% to 0.30%, base (carloads).....	55
Carbon, 0.30% to 0.40%, base.....	50
Plus differentials for lengths over 18 ft. and for commercial exact lengths. Warehouse discounts on small lots are less than the above.	

Line Co. will build a new oil line from Oklahoma to Whiting, Ind., in connection with a plan to increase its oil delivery capacity to Chicago by 25,000 bbl. daily. The new line will call for 42,000 tons of 8, 10 and 12-in. seamless pipe.

**Sheets.**—Business of the past week of the American Sheet & Tin Plate Co. was the largest of any similar period since late in 1925, and independent companies appear to be faring quite as well. Mills generally are insisting that tonnages bought on third quarter contracts not specified by Sept. 10 next will be cancelled, and one important maker is considering the setting of Sept. 3 as the deadline. It is not clear whether this is responsible for the activity, or that buyers want some protection against the lower rate of discount that is to become effective Oct. 1, but the fact remains that business is of unusual proportions for this time of the year. On current business, recent prices are ruling. The American Sheet & Tin Plate Co. has named 2.75c., base Pittsburgh, on black sheets, 3.60c., base, on galvanized, and 2c., base, on blue annealed as its fourth quarter prices. This company also has announced a change of terms to ½ of 1 per cent for cash in 10 days from date of invoice, effective Sept. 30 next.

**Tin Plate.**—Specifications for tin plate are lighter, and while makers are well supplied with business for the next 30 days, it is probable that there will be open mill capacity before the end of September. October requirements usually are light and there is no prospect that this year will be an exception. No sharp falling off in mill operations is likely, as there will be some production in October and more in November against early 1929 requirements.

**Cold-Finished Steel Bars and Shafting.**—Business is satisfactory to most makers, but they would like to be get-

ting more money for the product. Most of the orders on the books are at 2.10c., base Pittsburgh, and there has been enough coverage of buyers at that price to make difficult the obtaining of the higher price recently announced. Ground shafting prices have been advanced \$2 a ton, effective from Aug. 15, now being quoted at 3.50c., base mill, for 1½ in.; 3c. for 1 3/16 in. to 1½ in.; 2.85c. for 1 9/16 in. to 1½ in.; 2.70c. for 1 15/16 in. to 2½ in., and 2.55c. for 2 15/16 in. to 7 in.

**Hot-Rolled Flats.**—There is not only an active demand in the shape of specifications against contracts, but the trend of prices is toward increased firmness. Nothing yet has been said as to fourth quarter contract prices, and strictly new business is not of sufficient proportions to afford much of a test, but a restoration of what had been regarded as the regular market schedules, or 1.90c., base, for wide, 2.10c., base, for intermediate widths, and 2.20c., base, for narrow stock appears to be the aim of most producers.

**Cold-Rolled Strips.**—A leading producer has announced a base price of 2.85c., effective immediately. It also has announced a new card of extras dated Aug. 21, which incorporates changes in the extras for quantities of less than 3 tons of a size. This company also has opened its books for fourth quarter business. Other producers are expected to follow its lead, which means an advance of \$2 to \$4 a ton from prices recently prevailing, and abolishes the former method of making the base price apply on 1 to 3 tons of a size, with a decrease of 25c. per 100 lb. for lots of 3 tons or more, which caused a good deal of confusion. Cold-rolled strip business maintains its recent improvement.

**Coke and Coal.**—A steel company which recently took off the market much of the spot supply of beehive furnace coke has repeated the operation on a smaller scale, and the result is that spot offerings remain scant enough to keep prices very firm. General demand for furnace coke is moderate and no exceptional activity is noted in spot foundry coke. Supplies of the latter are ample. The coal market continues dull, except for household sizes, and prices generally are easy.

**Bolts, Nuts and Rivets.**—There has been some improvement in demand in the past week, but the market is active only in a comparative sense. Prices are held with a good deal of firmness.

**Old Material.**—There is a somewhat calmer tone to the market this week, as all consumers seem to have secured some supplies recently, and with increased mill operations there is naturally increased supply of mill scrap. Dealers still are buying, and, as offerings are moderate, prices are quite as firm as they have been. The advance, however, appears to have been checked. Dealers still report success in getting heavy melting steel for one

point in the district at \$15, but at other points \$15.50 is the ruling figure, and on fresh sales \$16 is as low as any dealer would be interested.

*Prices per gross ton delivered consumers' yards in Pittsburgh and points taking the Pittsburgh district freight rate:*

Basic Open-Hearth Grades:	
Heavy melting steel.....	\$15.00 to \$16.00
Scrap rails .....	15.00 to 15.50
Compressed sheet steel.....	14.75 to 15.25
Bundled sheets, sides and ends .....	13.75 to 14.25
Cast iron carwheels.....	15.00 to 15.50
Sheet bar crops, ordinary.....	15.50 to 16.00
Heavy breakable cast.....	12.00 to 12.50
No. 2 railroad wrought.....	15.00 to 16.00
Heavy steel axle turnings.....	14.00 to 14.50
Machine shop turnings.....	10.00 to 10.50

Acid Open-Hearth Grades:	
Railr. knuckles and couplers.....	16.00 to 16.50
Railr. coil and leaf springs.....	16.00 to 16.50
Roller steel wheels.....	16.00 to 16.50
Low phos. billet and bloom ends .....	19.00 to 19.50
Low phos., mill plate.....	17.50 to 18.00
Low phos., light grade.....	16.50 to 17.00
Low phos. sheet bar crops.....	17.50 to 18.00
Hvy. steel axle turnings.....	14.00 to 14.50

Electric Furnace Grades:	
Low phos. punchings.....	16.00 to 16.50
Hvy. steel axle turnings.....	14.00 to 14.50

Blast Furnace Grades:	
Short shov'l'g steel turnings .....	11.00 to 11.50
Short mixed borings and turnings .....	11.00 to 11.50
Cast iron borings.....	11.00 to 11.50
No. 2 bushelling.....	10.00 to 10.50

Rolling Mill Grades:	
Steel car axles .....	18.50 to 19.00
No. 1 railroad wrought.....	12.00 to 12.50
Sheet bar crops.....	16.50 to 17.00

Cupola Grades:	
No. 1 cast.....	14.50 to 15.00
Rails 3 ft. and under.....	16.00 to 16.50

A reduction in freight rates on spelter between Indiana points and sources of supply in Arkansas has been announced by the Indianapolis Chamber of Commerce. The 34½c. rate to Indianapolis has been reduced to 25½c. and corresponding reductions have been made for all points in the State, placing Indiana consumers on the same basis as Chicago.

Employment in Worcester, Mass., industries has shown improvement. According to figures furnished by the 42 plants which report to the Worcester Safety Council in its lost-time accident contest, the average number of employees in June was 23,377. In June, 1927, the same companies reported an average of 20,637 workers. Worcester outbound shipments in June this year were 33,398 cars against 30,540 cars in June, 1927. In July the total was 30,071 cars against 27,120 a year previous.

The Lehigh Structural Steel Co., Allentown, Pa., has rounded out its group insurance program by the purchase of group health and non-occupational accident insurance. According to salary classification, subscribing employees will be paid \$10, \$20 or \$30 a week when unable to work due to sickness from any cause, or injury received while off duty. During this time insured employees are offered the advantages of a visiting nurse service and a health advisory bureau.

#### Warehouse Prices, f.o.b. Pittsburgh

	Base per Lb.
Plates .....	3.00c.
Structural shapes .....	3.00c.
Soft steel bars and small shapes.....	2.90c.
Reinforcing steel bars .....	2.75c.
Cold-finished and screw stock—	
Rounds and hexagons.....	3.60c.
Squares and flats .....	4.10c.
Bands .....	3.60c.
Hoops .....	4.00c. to 4.50c.
Black sheets (No. 24), 25 or more bundles .....	3.45c.
Galv. sheets (No. 24), 25 or more bundles .....	4.30c.
Blue ann'l'd sheets (No. 10), 1 to 10 sheets .....	3.35c.
Galv. corrug. sheets (No. 28), per square .....	\$4.31
Spikes, large .....	3.40c.
Small .....	3.80c. to 5.25c.
Boat .....	3.80c.
Track bolts, all sizes, per 100 count, 60 per cent off list .....	
Machine bolts, 100 count, 60 per cent off list .....	
Carriage bolts, 100 count, 60 per cent off list .....	
Nuts, all styles, 100 count, 60 per cent off list .....	
Large rivets, base per 100 lb. .....	\$3.50
Wire, black soft ann'l'd, base per 100 lb. ....	\$3.00 to 3.10
Wire, galv. soft, base per 100 lb. ....	3.00 to 3.10
Common wire nails, per keg .....	3.00
Cement coated nails, per keg .....	3.05



# Semi-Finished Steel, Raw Materials, Bolts and Rivets •

## Mill Prices of Semi-Finished Steel

### F.o.b. Pittsburgh or Youngstown

Billets and Blooms	
	Per Gross Ton
Rerolling, 4-in. and over.....	\$32.00 to \$33.00
Rerolling, under 4-in. to and including 1½-in.....	33.00 to 34.00
Forging, ordinary.....	38.00
Forging, guaranteed.....	43.00

Sheet Bars	
	Per Gross Ton
Open-hearth or Bessemer.....	\$32.00

Slabs	
	Per Gross Ton
8 in. x 2 in. and larger.....	\$32.00 to \$33.00
Smaller than 8 in. x 2 in.....	33.00 to 34.00

Skelp	
	Per Lb
Grooved .....	1.85c. to 1.90c.
Sheared .....	1.85c. to 1.90c.
Universal .....	1.85c. to 1.90c.

Wire Rods	
	Per Gross Ton
*Common soft, base.....	\$42.00
Screw stock.....	\$5.00 per ton over base

\*Chicago mill base is \$43. Cleveland mill base, \$42.

## Prices of Raw Material

Ores	
Lake Superior Ores, Delivered Lower Lake Ports	
	Per Gross Ton
Old range Bessemer, 51.50% iron.....	\$4.55
Old range non-Bessemer, 51.50% iron.....	4.40
Mesabi Bessemer, 51.50% iron.....	4.40
Mesabi non-Bessemer, 51.50% iron.....	4.25
High phosphorus, 51.50% iron.....	4.15
Foreign Ore, c.i.f. Philadelphia or Baltimore	
	Per Unit
Iron ore, low phos., copper free, 55 to 58% iron in dry Spanish or Algeria.....	10.00c.
Iron ore, Swedish, average 66% iron, 9.25c. to 9.50c. ....	39c.
Manganese ore, washed, 52% manganese, from the Caucasus.....	38c. to 39c.
Manganese ore, Brazilian, African or Indian, basis 50% .....	\$10.85 to \$11.00
Tungsten ore, high grade, per unit, in 60% concentrates .....	Per Gross Ton
Chrome ore, 45 to 50% Cr <sub>2</sub> O <sub>3</sub> , crude, c.i.f. Atlantic seaboard .....	Per Lb.
Molybdenum ore, 85% concentrates of MoS <sub>2</sub> , delivered.....	50c. to 55c.

Coke	
	Per Net Ton
Furnace, f.o.b. Connellsville prompt .....	\$2.75
Foundry, f.o.b. Connellsville prompt .....	\$3.50 to 4.25
Foundry, by-product, Chgo ovens..	8.00
Foundry, by-product, New England, del'd.....	11.00
Foundry, by-product, Newark or Jersey city, delivered.....	9.00 to 9.40
Foundry, Birmingham.....	5.00
Foundry, by-products, St. Louis, f.o.b. ovens.....	8.00
Foundry by-prod., del'd St. Louis..	9.00

Coal	
	Per Net Ton
Mine run steam coal, f.o.b. W. Pa. mines .....	\$1.40 to \$1.80
Mine run coking coal, f.o.b. W. Pa. mines .....	1.50 to 1.75
Gas coal, ¾-in., f.o.b. Pa. mines..	2.00 to 2.10
Mine run gas coal, f.o.b. Pa. mines	1.75 to 1.90
Steam slack, f.o.b. W. Pa. mines..	1.00 to 1.05
Gas slack, f.o.b. W. Pa. mines....	1.15 to 1.20

Ferromanganese	
	Per Gross Ton
Domestic, 80%, furnace or seab'd.....	\$105.00
Foreign, 80%, Atlantic or Gulf port, duty paid .....	105.00

Spiegeleisen	
	Per Gross Ton Furnace
Domestic, 19 to 21%.....	\$33.00
Domestic, 16 to 19%.....	32.00

Electric Ferrosilicon	
	Per Gross Ton Delivered
50% .....	\$83.50 to \$88.50
75% .....	130.00 to 140.00
Per Gross Ton Furnace	
10% .....	\$35.00
11% .....	\$37.00
12% .....	\$39.00
14 to 16%.....	45.00

Bessemer Ferrosilicon	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
10% .....	\$30.00
11% .....	32.00
12% .....	\$34.00

Silvery Iron	
F.o.b. Jackson County, Ohio, Furnace	
	Per Gross Ton
6% .....	\$23.00
7% .....	24.00
8% .....	25.00
9% .....	26.00
10% .....	\$28.00
11% .....	30.00
12% .....	32.00

Other Ferroalloys	
Ferrotungsten, per lb. contained metal, del'd .....	95c.
Ferromanganese, 4 to 6% carbon and up, 65 to 70% Cr., per lb. contained Cr. delivered, in carloads.....	11.00c.
Ferrovandium, per lb. contained vanadium, f.o.b. furnace.....	\$3.15 to \$3.65
Ferrocobaltititanium, 15 to 18%, per net ton, f.o.b. furnace, in carloads.....	\$200.00
Ferrophosphorus, electric or blast furnace material, in carloads, 18%, Rockdale, Tenn., base, per gross ton.....	\$91.00
Ferrophosphorus, electric, 24%, f.o.b. Anniston, Ala., per gross ton.....	\$122.50

Fluxes and Refractories	
Fluorspar	
	Per Net Ton
Domestic, 85% and over calcium fluoride, not over 5% silica, gravel, f.o.b. Illinois and Kentucky mines.....	\$17.00
No. 2 lump, Illinois and Kentucky mines..	\$18.00
Foreign, 85% calcium fluoride, not over 5% silica, c.i.f. Atlantic port, duty paid....	\$16.00
Domestic, No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silica, f.o.b. Illinois and Kentucky mines.....	\$32.50

Fire Clay	
Per 1000 f.o.b. Works	
First Quality	Second Quality
Pennsylvania .....	\$43.00 to \$46.00
Maryland .....	43.00 to 46.00
New Jersey.....	50.00 to 65.00
Ohio .....	43.00 to 46.00
Kentucky .....	43.00 to 46.00
Missouri .....	43.00 to 46.00
Illinois .....	43.00 to 46.00
Ground fire clay, per ton.....	7.00

Silica Brick	
Per 1000 f.o.b. Works	
Pennsylvania .....	\$43.00
Chicago .....	52.00
Birmingham .....	50.00
Silica clay, per ton.....	\$8.50 to 10.00

Magnesite Brick	
Per Net Ton	
Standard sizes, f.o.b. Baltimore and Chester, Pa.....	\$65.00
Grain magnesite, f.o.b. Baltimore and Chester, Pa.....	40.00

Chrome Brick	
Per Net Ton	
Standard size .....	\$45.00

## Mill Prices of Bolts, Nuts, Rivets and Set Screws

### Bolts and Nuts

Per 100 Pieces	
(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)	
Per Cent Off List	
†Machine bolts .....	70
†Carriage bolts .....	70
Lag bolts .....	70
Plow bolts, Nos. 1, 2, 3 and 7 heads.....	70
Hot-pressed nuts, blank or tapped, square....	70
Hot-pressed nuts, blank or tapped, hexagons..	70
C.p.c. and t. square or hex. nuts, blank or tapped .....	70
Washers* .....	6.75c. to 6.50c. per lb. off list

\*F.o.b. Chicago, New York and Pittsburgh.  
†Bolts with rolled thread up to and including ¾ in. x 6 in. take 10 per cent lower list prices.

### Bolts and Nuts

Per Cent Off List	
Semi-finished hexagon nuts.....	70
Semi-finished hexagon castellated nuts, S.A.E. 70	70
Stove bolts in packages, Pittsburgh. 80, 10 and 2½	70
Stove bolts in packages, Chicago. 75, 20, 10 and 5	70
Stove bolts in bulk, Pittsburgh.....	80, 10 and 5
Stove bolts in bulk, Chicago. 75, 20, 10, 5 and 2½	70
Tire bolts .....	60, 5 and 5

Discounts of 70 per cent off on bolts and nuts applied on carload business. For less than carload orders discounts of 55 to 60 per cent apply.

### Large Rivets

Base per 100 Lb.	
F.o.b. Pittsburgh or Cleveland.....	\$2.90
F.o.b. Chicago.....	3.00

### Small Rivets

Per Cent Off List	
(½-In. and Smaller)	
F.o.b. Pittsburgh.....	70 and 10
F.o.b. Cleveland .....	70 and 10
F.o.b. Chicago.....	70 and 10

### Cap and Set Screws

(Freight allowed up to but not exceeding 50c. per 100 lb. on lots of 200 lb. or more)

Per Cent Off List	
Milled cap screws.....	80, 10 and 10
Milled standard set screws, case hardened, 80 and 10 .....	80 and 10
Milled headless set screws, cut threads.....	80 and 10
Upset hex. head cap screws, U.S.S. thread.....	85 and 5
Upset hex. cap screws, S.A.E. thread.....	85 and 5
Upset set screws.....	80, 10 and 10
Milled studs.....	70 and 5

# Chicago

## Steel Business Sufficient to Sustain 75 Per Cent Output— 50,000 Tons of Foundry Pig Iron Sold

CHICAGO, Aug. 21.—Ingot operations in this district remain at 75 per cent of capacity and steel mills are making use of 25 of a total of 36 blast furnaces. Bar mill capacity is heavily engaged, but in plates and structurals not over 75 per cent of possible output is being used. Steel orders are numerous but individually small and buying is at close range, so that operators are finding difficulty in arranging rolling schedules, particularly in the last days of each week.

Purchases totaling 15,000 tons of standard-section rails closely follow smaller orders in recent weeks. This business has not only served to raise rail mill production but to sustain the higher rate through this week and give promise of an equal output in the next seven days.

Sheet mills, handicapped by hot weather, have speeded to 85 per cent of capacity and even at that rate orders are piling up faster than shipments can be made.

Producers of wire products are finding stocks low and out of balance in view of the prospects for an active fall trade. This situation is being met by an advance of two to three points in mill output and readjustment of production in various departments.

The trend of prices is in an upward direction. Cold-rolled bars have been advanced to 2.20c. per lb., Chicago, and blue annealed sheets are being quoted for fourth quarter at 2.10c. for widths under 45 in. and at 2.20c. for 45 in. and over.

Sept. 10 has been set as the dead line for specifications against orders for plates, shapes and bars at third quarter quotations of 2c. Producers are making a stand for 2.10c. per lb. for these commodities for fourth quarter.

**Pig Iron.**—Sales of Northern foundry iron for the week total close to 50,000 tons. Individual orders are not as large as in recent weeks, but buyers over a wider territory and in a greater variety of industries are using larger quantities, and appear better able to judge future requirements. Price advances announced to the east of Chicago are having some influence on activity and strength in this market. In some cases buyers who have made recent purchases are rechecking their requirements with the thought of taking full advantage of present prices. In the meantime, local producers are sending out quotations for immediate acceptance. Chicago furnace stocks are shrinking rapidly and are in unsatisfactory balance. It is considered probable here that a merchant stack will be blown in at an early date. Shipments of Northern foundry iron in the 21 days of August are well ahead of the corresponding periods in either June or July of this year.

### Prices per gross ton at Chicago:

N'th'n No. 2 fdy., sil. 1.75 to 2.25..	\$17.50
N'th'n No. 1 fdy., sil. 2.25 to 2.75..	18.00
Malleable, not over 2.25 sil.....	17.50
High phosphorus .....	17.50
Lake Super. charcoal, sil. 1.50.....	27.04
So'th'n No. 2 fdy. (all rail).....	21.51
So'th'n No. 2 (barge and rail).....	21.01
Low phos., sil. 1 to 2, copper free .....	\$28.50 to 29.00
Silvery, sil. 8 per cent.....	29.79
Bess. ferrosilicon, 14-15% .....	46.79

Prices are delivered consumers' yards except on Northern foundry, high phosphorus and malleable, which are f.o.b. local furnace, not including an average switching charge of 61c. per gross ton.

**Ferroalloys.**—Specifications against last half contracts for ferromanganese are in larger total volume. New business is quiet at \$105, seaboard. Buyers are showing little interest in spiegeleisen, which is being quoted at \$33, Hazard, Pa., for carloads of the 19 to 21 per cent grade.

Prices delivered Chicago: 80 per cent ferromanganese, \$112.56; 50 per cent ferrosilicon, \$83.50 to \$87.50; spiegeleisen, 19 to 21 per cent, \$40.76.

**Plates.**—Plate mill engagement in this district continues to hold at a shade above 70 per cent of capacity, in spite of the fact that car shop operations are at low ebb; also there is an increasing use of special shapes, which makes the call for narrow plates from fabricators much less urgent than formerly. Welded gas and oil pipe have taken up part of the slack, and miscellaneous uses for plates have grown to larger proportions. The Texas & Pacific has ordered 3000 tons of tankage material from an Eastern producer. Oil storage projects are being shaped, but definite inquiry is lacking in this market. The Chesapeake & Ohio has closed for 500 gondola cars. The Illinois Traction System will take figures on 100 to 200 50-ton gondola cars and the Great Northern will buy about 6000 tons of steel for a purpose not definitely stated. The Sinclair Pipe Line Co., a joint subsidiary of the Sinclair Consolidated Oil Corporation and the Standard Oil Co. of Indiana, has approved a project that calls for 65,000 tons of steel pipe. It involves a 360-mile line of 8, 10 and 12-in. oil pipe, which will increase pipe line delivery into Chicago by 25,000 bbl. daily. Prices for plates at Chicago are firmer at 2c. per lb. Several small lots have been taken at 2.10c. for delivery in the fourth quarter. Deliveries range from two to three weeks.

Mill prices on plates, per lb.: 2c. base Chicago.

**Structural Material.**—New structural orders during the last week were confined largely to bridge work. The Mount Vernon Bridge Co. will furnish 4300 tons for a bridge in Louisiana and two bridges in Illinois, calling for 1800 tons. The Rand Building, Minneapolis, requiring 3000 tons, was taken by a Minneapolis shop. Reports that building construc-

tion in Chicago for the first seven months was 38 per cent above the corresponding period a year ago are reflected in the rate at which local shops are engaged. The distribution of orders has not been wholly to the liking of all fabricators, but with the rapid erection common these days it has become necessary for the successful bidder to farm out parts of the larger awards to competing shops. In this way, promised deliveries are met and the rate of shop engagement is quite uniform. In the Northwest and in the West, fabricators are finding orders rather spotty, with the result that some shops are unusually busy while others are complaining because of lack of work. Fresh inquiry includes 1000 tons for the First Regiment Armory, Chicago, and 1500 tons for the Camp Building, Milwaukee. Bids taken on large inquiries at Chicago show prices to be \$6 to \$8 a ton above recent levels. Though the price trend is upward, net returns to fabricators are said to be still extremely narrow. Competition on small jobs is keen and prices on this class of work show no improvement. Chicago producers have in mind naming 2.10c. on structural material for fourth quarter delivery.

Mill prices on plain material, per lb.: 2c., base, Chicago.

**Bars.**—Shipments of soft steel bars in the first two weeks of August were well ahead of the corresponding period in July. The automotive industry continues the heaviest user. Some promise is given that this pace will continue in that two of the foremost automobile builders are maintaining August production schedules which will establish monthly records for all time. Mild steel bars are steady at 2c., Chicago, for delivery to the end of September. The fourth quarter prices, which are now named at 2.10c., have been used on a few scattered sales. Some unsettling in prices is noted in forging bars, which are reaching this territory from the East. Iron bars are quiet but prices are firm at 2c., Chicago. Shipments of alloy bars remain steady at 80 per cent of local mill capacity. Prices and alloy differentials are holding. Rail steel bar mills have lengthened hours of operation to meet in part a heavier demand and to build up fence post stock, which is small in view of the fact that the fall demand is close at hand. Bed manufacturers are finding need for larger quantities and barn equipment makers show no signs of lessening their pace. Stocks in the hands of users are small and most orders are for immediate delivery. Prices are firm at 1.85c., Chicago Heights.

Mill prices per lb.: Soft steel bars, 2c., base, Chicago; common bar iron, 2c., base, Chicago; rail steel bars, 1.85c., base, Chicago Heights mill.

**Sheets.**—Warm weather is checking hot mill output, which is averaging close to 85 per cent of capacity. In the meantime, orders continue to pile up and deliveries are lengthening. For blue annealed sheets for fourth quarter, Chicago producers name



2.10c., mill, for widths under 45 in., and 2.20c. for sheets 45 in. and wider. An extra of 10c. per 100 lb. is being added to quotations on all grades for orders that range from 50 to 100 tons.

Base prices per lb., deliv'd from mill in Chicago: No. 24 black sheets, 2.80c. to 2.90c.; No. 24 galv., 3.65c. to 3.75c.; No. 10 blue ann'd, 2.15c. to 2.25c. Deliv'd prices at other Western points are equal to the freight from Gary plus the mill prices, which are 5c. per 100 lb. lower than Ch'go deliv'd prices.

**Rails and Track Supplies.**—Two Western railroads have ordered 15,000 tons of standard-section rails and 7500 tons of track supplies. One purchase is by a railroad which usually buys at this time and the other came from a road that bought lightly in the spring and needs additional rails for this year's laying. The advance reported a week ago in rail mill operations is holding.

Prices f.o.b. mill, per gross ton: Standard-section open-hearth and Bess. rails, \$43; light rails, rolled from billets, \$36. Per lb.: Standard railroad spikes, 2.80c.; track bolts with square nuts, 3.80c.; steel tie plates, 2.15c.; angle bars, 2.75c.

**Cast Iron Pipe.**—The United States Cast Iron Pipe & Foundry Co. is low bidder at \$41.90, delivered, on 1920 tons of 8 and 12-in. class B pipe for Chicago. The freight rate from Birmingham to Chicago is \$8.20. Taken as a whole, this market is quiet.

Prices per net ton, deliv'd Chicago: Water pipe, 6-in. and over, \$42.20 to \$43.20; 4-in., \$46.20 to \$47.20; Class A and gas pipe, \$4 extra.

**Reinforcing Bars.**—Greater activity marks this commodity. Awards are well scattered over the entire territory and prices are firm, except to the south. Indiana and southern Illinois dealers have reached into central Illinois and have taken business below the levels being maintained in and near Chicago. Locally 2.30c. and 2c., base warehouse, respectively, are the ruling quotations on billet steel and rail steel bars, these prices having been re-established after a break about 10 days ago. Architects remain busy, and dealers are awaiting plans on several heavy-tonnage apartment projects. Plans have not been prepared on the Apparel Mart, Chicago, and the tonnage of reinforcing bars required is in doubt. New awards and fresh inquiries are shown on page 498.

#### Warehouse Prices, f.o.b. Chicago

	Base per Lb.
Plates and structural shapes.....	3.10c.
Soft steel bars .....	3.00c.
Reinforc'g bars, billet steel, 2.30c. to 3.00c.	
Reinforc'g bars, hard steel, 2.00c. to 2.70c.	
Cold-fin. steel bars and shafting—	
Rounds and hexagons.....	3.60c.
Flats and squares.....	4.10c.
Bands .....	3.65c.
Hoops .....	4.15c.
Black sheets (No. 24).....	3.80c.
Galv. sheets (No. 24).....	4.65c.
Blue ann'd sheets (No. 10).....	3.35c.
Spikes, stand. railroad.....	3.55c.
Track bolts .....	4.55c.
Rivets, structural .....	3.60c.
Rivets, boiler .....	3.60c.
Per Cent Off List	
Machine bolts .....	60
Carriage bolts .....	60
Coach or lag screws .....	60
Hot-pressed nuts, sq., tap, or blank... 60	
Hot-pressed nuts, hex., tap, or blank.. 60	

No. 8 black ann'd wire, per 100 lb. \$3.30  
Com. wire nails, base per keg..... 3.10  
Cement c'd nails, base per keg.... 3.10

**Old Material.**—Tendencies in the local scrap market are varied. Heavy melting steel has brought \$13 a gross ton, which is 25c. below prices paid on recent heavy purchases. On the other hand, numerous other grades are advancing in price. Steel foundry grades are active. Short rails and steel angle bars are scarce.

Prices, deliv'd Chicago district consumers:

Per Gross Ton	
Basic Open-Hearth Grades:	
Heavy melting steel.....	\$12.75 to \$13.25
Shoveling steel .....	12.75 to 13.25
Frogs, switches and guards, cut apart, and misc. rails	14.00 to 14.50
Hydraulic compressed sheets	11.25 to 11.75
Drop forge flashings.....	9.50 to 10.00
Forg'd, cast and r'd steel carwheels .....	16.00 to 16.50
Rail'd tires, charg. box size .....	16.00 to 16.50
Rail'd leaf springs cut apart .....	16.00 to 16.50

Acid Open-Hearth Grades:	
Steel couplers and knuckles	14.25 to 14.75
Coil springs .....	16.50 to 17.00

Electric Furnace Grades:	
Axle turnings .....	12.75 to 13.25
Low phos. punchings.....	14.50 to 15.00
Low phos. plate, 12 in. and under .....	14.50 to 15.00

Blast Furnace Grades:	
Axle turnings .....	9.50 to 10.00
Cast iron borings.....	9.25 to 9.75
Short shoveling turnings..	9.25 to 9.75
Machine shop turnings....	6.50 to 7.00

Rolling Mill Grades:	
Iron rails .....	14.00 to 14.50
Rerolling rails .....	15.50 to 16.00

Cupola Grades:	
Steel rails less than 3 ft..	15.75 to 16.25
Angle bars, steel.....	15.25 to 15.75
Cast iron carwheels.....	12.75 to 13.00

Malleable Grades:	
Railroad .....	13.00 to 13.50
Agricultural .....	11.50 to 12.00

Miscellaneous:	
*Relay'g rails, 56 to 60 lb.	23.00 to 25.00
*Relay'g rails, 65 lb. and heav. ....	26.00 to 31.00

Per Net Ton	
Rolling Mill Grades:	
Iron angles and splice bars	13.50 to 14.00
Iron arch bars and transoms .....	20.00 to 20.50
Iron car axles .....	24.00 to 24.50
Steel car axles .....	15.75 to 16.25
No. 1 railroad wrought... 11.25 to 11.75	
No. 2 railroad wrought... 11.50 to 12.00	
No. 1 busheling .....	10.00 to 10.50
No. 2 busheling .....	5.75 to 6.25
Locomotive tires, smooth..	12.00 to 12.50
Pipes and flues .....	8.00 to 8.50

Cupola Grades:	
No. 1 machinery cast.....	14.00 to 14.50
No. 1 railroad cast.....	13.00 to 13.50
No. 1 agricultural cast.....	12.50 to 13.00
Stove plate .....	10.75 to 11.25
Grate bars .....	12.00 to 12.50
Brake shoes .....	10.00 to 10.50

\*Relaying rails, including angle bars to match, are quoted f.o.b. dealers' yards.

**Cold-Finished Bars.**—Following closely the announcement of higher prices in the East, local producers have named 2.20c. per lb., Chicago, to rule on quotations for all orders that can be delivered before the end of the third quarter. Books have not been opened for the final quarter.

**Wire Products.**—Producers of wire and wire products look with favor on the substantial volume of business that is reaching them in August, which is usually a dull month, and they are pinning their faith on the outlook for crops and a fair degree of assurance that fall trade will be heavy. Reports from the country, as a whole, indicate that crops will be larger and prices higher than in 1927.

Dealers in rural districts are finding business dull, and this situation is reflected back to the jobbers. Stocks in the hands of distributors are small, and orders to mills are merely to fill in for immediate requirements. On the other hand, the general level of activity in the manufacturing trade is high, especially in the Detroit and Cleveland territories. The demand for bale ties is unusually active when it is considered that the use for this commodity is steadily decreasing. The increased rate of nail shipments noticed 10 days ago has continued. Wire mills, in order to build stocks, have raised operations a point or two above the recent 60 per cent rate. Producers believe that they have enough orders in sight to make certain that the summer of 1928 will be the best mid-year season since 1922.

**Coke.**—Prices for by-product foundry coke are steady and deliveries are running a shade heavier than in July.

**Bolts, Nuts and Rivets.**—Output by producers of these commodities remains between 60 and 65 per cent of capacity. Specifications have grown heavier from manufacturers of agricultural machinery.

#### New Extras Announced by Carnegie Steel Co.

The Carnegie Steel Co. has published, under date of Aug. 1, two new cards, one giving the classification of extras for size, chemical specifications and quality for semi-finished steel and the other giving the extras for chemical specifications and quality of structural shapes, plates, bars, small shapes, hoops and bands.

Except that the extra for copper content in semi-finished steel up to 0.20 minimum is \$3 per gross ton against \$2 per net ton on finished products and that the new semi-finished card extras are expressed in dollars per gross ton and those for finished products in cents per pound, the extras are the same as those published in THE IRON AGE of Aug. 9, last.

Size extras for blooms, billets and slabs are:

Squares under 4 x 4 in. to 1½ x 1½ in., inclusive, or rectangular sections of equivalent areas not less than 3-in. thick, \$1 per gross ton.

4 x 4 in. to under 10 x 10 in., or equivalent area, no extras.

10 x 10 in. to under 14 x 14 in. or equivalent area, \$2 extra.

14 x 14 in. to under 16 x 16 in. or equivalent area, \$4 extra.

16 x 16 in. to under 20 x 20 in., or equivalent area, \$6 extra.

20 x 20 in. and over or equivalent area, \$8 extra.

Weight per piece when ordered 12,000 lb. or over, \$10 extra. (This shall not apply when product of ingot is accepted).

Production of bituminous coal in the United States up to Aug. 11 is reported by the Bureau of Mines at 285,098,000 net tons. This compares with 325,673,000 tons for the corresponding period in 1927 and 324,847,000 tons in 1926.

# Philadelphia

## Pennsylvania Railroad Bids on Plates, Shapes and Bars Range from 1.90c. to 2.10c., Mill

PHILADELPHIA, Aug. 21.—Bids opened today by the Pennsylvania Railroad on 25,000 tons of plates, shapes and bars, were watched with interest by representatives of steel producers with a view to determining the attitude of various companies on fourth quarter prices. The railroad did not specify when it would take delivery, but it was assumed that, as its inquiry came out in the middle of the quarter, instead of at the beginning, specifications would be spread over the rest of the year. Eastern mills, including those in the Pittsburgh and Ohio districts, quoted 1.90c., mill, and Chicago producers quoted 2.10c., with the single exception that the Republic Iron & Steel Co. quoted 2c. on bars. Some companies stated that their quotations would hold good for specification only until Sept. 30, while others, conspicuously the Carnegie Steel Co. and the Bethlehem Steel Co., made no restriction. A few producers gave Dec. 31 as the final date on which specifications would be accepted.

The price situation is unchanged on orders for early shipment, except on shapes, which are slightly firmer. Present activity is confined almost entirely to specifications against third quarter contracts. The announced advances on plates, shapes, bars, black and galvanized sheets for fourth quarter by some mills will no doubt be followed by Eastern mills.

**Pig Iron.**—Foundry iron buying is still confined to lots of 100 tons or less. The quotation of \$19.50 per ton, furnace, is firmer, and concession from this base is not considered so likely today as a week or two ago. The Coatesville Boiler Works, Coatesville, Pa., is in the market for about 100 tons of No. 2X and the Baltimore & Ohio Railroad is inquiring for a carload of high manganese foundry. The J. L. Mott Co., Trenton, N. J., has closed with a nearby furnace on about 100 tons of No. 2 foundry. Demand for low phosphorus has improved and prices are quite firm. The Lorain Steel Co., Johnstown, Pa., is inquiring for 1500 to 2000 tons of low phosphorus iron, copper bearing being acceptable. Nearby users of basic iron are well covered for the present.

### Prices per gross ton at Philadelphia:

East. Pa. No. 2, 1.75 to 2.25 sil.	20.26
East. Pa. No. 2X, 2.25 to 2.75 sil.	20.76
East. Pa. No. 1X, 1.75 to 2.25 sil.	21.26
Basic (del'd east. Pa.)	\$18.75 to 19.25
Gray forge	19.75 to 20.25
Malleable	21.00 to 21.50
Stand. low phos. (f.o.b. N. Y. State furnace)	22.00 to 23.00
Cop. b'r'g low phos. (f.o.b. furnace)	23.00 to 23.50
Va. No. 2 plain, 1.75 to 2.25 sil.	24.54
Va. No. 2X, 2.25 to 2.75 sil.	25.04

Prices, except as specified otherwise, are deliv'd Philadelphia. Freight rates: 76c. to \$1.64 from eastern Pennsylvania furnaces; \$4.54 from Virginia furnaces.

**Ferromanganese.**—Activity is almost entirely in requisitions against last half contracts, consumers evidently not needing any tonnage in addition to their commitments. The price continues at \$105 per ton, seaboard.

**Bars.**—Most mills are well booked with business and able to maintain a fair rate of operation. Quotations for current delivery are 1.85c. to 1.90c., Pittsburgh, or 2.17c. to 2.22c., Philadelphia, and 2c., Pittsburgh, or 2.32c., Philadelphia, has been named as the fourth quarter price.

**Plates.**—Shipments are principally of contract specifications, but there is a fair tonnage of such business and

improvement in small orders for prompt shipment is expected after Labor Day. Quotations continue at 2c. to 2.05c., Coatesville, or 2.10c. to 2.15c., Philadelphia, for early delivery and 2.15c., Coatesville, or 2.25c., Philadelphia, is considered as a possibility for fourth quarter business.

**Shapes.**—Fabricators are well engaged and have a good tonnage of desirable contracts in prospect before the end of the year. This is reflected in a better demand and firmer prices. The producer at Pencoyd, Pa., which has been quoting 1.95c. to 2c., Pencoyd, or 2.01c. to 2.06c., Philadelphia, has begun to ask 2c. to 2.05c., Pencoyd, or 2.06c. to 2.11c., Philadelphia. The market does not show a full \$1 a ton advance, however, as preferred buyers are reported as still able to obtain 1.95c., Pencoyd, on desirable business. On small lots of shapes for prompt shipment, 2c., Bethlehem, or 2.13c., Philadelphia, occasionally applies.

**Sheets.**—Consumers are well booked with business, particularly the automobile body builders and a local radio

### Warehouse Prices, f.o.b. Philadelphia

	Base per Lb.
Plates, 1/4-in. and heavier	2.50c. to 2.60c.
Plates, 3/8-in.	2.80c. to 3.00c.
Structural shapes	2.40c. to 2.60c.
Soft steel bars, small shapes, iron bars (except bands)	2.70c.
Round-edge iron	3.50c.
Round-edge steel, iron finished 1 1/2 x 1 1/2 in.	3.50c.
Round-edge steel, planished	4.30c.
Reinforc. steel bars, sq. twisted and deform.	2.50c. to 3.00c.
Cold-fin. steel, rounds and hex.	3.35c.
Cold-fin. steel, sq. and flats	3.85c.
Steel hoops	3.50c.
Steel bands, No. 12 to 1/4-in., inclus.	3.25c.
Spring steel	5.00c.
*Black sheets (No. 24)	3.85c.
†Galvanized sheets (No. 24)	4.60c.
Blue ann'd sheets (No. 10)	3.15c.
Diam. pat. floor plates—	
1/4-in.	5.30c.
3/8-in.	5.50c.
Rails	3.20c.
Swedish iron bars	6.60c.

\*For 50 bundles or more; 10 to 49 bun., 4.10c. base; 1 to 9 bun., 4.35c. base.  
†For 50 bundles or more; 10 to 49 bun., 4.95c. base; 1 to 9 bun., 5.30c. base.

manufacturer, but in most cases, users are well covered and are not expected to show much interest in fourth quarter contracts until the end of next month. Mills generally are seeking a \$2 to \$4 advance on black and galvanized sheets for last quarter delivery, asking 2.75c., base Pittsburgh, for black and 3.60c. for galvanized. Present quotations for early shipment are 2.65c. on black and 3.40c., Pittsburgh, on galvanized. Blue annealed prices are being fairly well maintained at 2c., Pittsburgh, or 2.32c., Philadelphia, for 45 in. and narrower and 2.10c., base Pittsburgh, on wider than 45 in. Occasional concessions from 2c., Pittsburgh, have been made to preferred buyers.

**Warehouse Business.**—Buying is light and at the present rate the total will probably be smaller for this month than in July.

**Imports.**—In the week ended Aug. 18, arrivals of pig iron totaled 2614 gross tons, of which 2500 tons was from the United Kingdom, 59 tons from Sweden and 55 tons from Norway. Ore arrivals totaled 610 tons from Portuguese Africa. In steel products, 262 tons of structural shapes, 61 tons of steel bars and four tons of bands came from Belgium and 103 tons of structural shapes from Germany.

**Old Material.**—The week's business was featured by the purchase of upward of 10,000 tons of heavy melting steel by the Bethlehem Steel Co. for shipment to Bethlehem. The price was \$13 a ton, which also applied on the last previous purchase by this company. All grades show more firmness and in a few instances prices have advanced on recent sales. Bundled sheets are 50c. a ton higher, based on \$11 a ton paid by a Harrisburg, Pa., consumer, and yard steel is quotable at a similar 50c. a ton advance as a result of a purchase at \$11.50 per ton, delivered Harrisburg. Specification pipe has been bought by a user at Columbia, Pa., at \$13 per ton, delivered, an increase of 50c.

### Prices per gross ton delivered consumers' yards, Philadelphia district:

No. 1 heavy melting steel.	\$13.00
Scrap T rails	12.50
No. 2 heavy melting steel	\$11.00 to 11.50
No. 1 railroad wrought	13.50 to 14.50
Bundled sheets (for steel works)	10.50
Machine shop turnings (for steel works)	10.50
Heavy axle turnings (or equiv.)	12.00 to 13.00
Cast borings (for steel works and roll. mill)	10.50
Heavy breakable cast (for steel works)	15.00 to 15.50
Railroad grate bars	11.00 to 11.50
Stove plate (for steel works)	11.00 to 11.50
No. 1 low phos. hvy. 0.04% and under	17.50 to 18.00
Couplers and knuckles	14.50 to 15.00
Rolled steel wheels	14.50 to 15.00
No. 1 blast f'nace scrap	9.50 to 10.00
Wrot. iron and soft steel pipes and tubes (new specific.)	12.50 to 13.00
Shafting	16.50 to 17.00
Steel axles	19.00 to 20.00
No. 1 forge fire	11.00
Cast iron carwheels	15.50 to 15.75
No. 1 cast	15.50 to 16.00
Cast borings (for chem. plant)	14.50 to 15.00
Steel rails for rolling	14.50 to 15.00



# New York

## August Steel Orders Exceeding Those of July—Pig Iron Sales in Good Volume

NEW YORK, Aug. 21.—Sales of pig iron in this territory continue in good volume, having totaled 13,000 tons for the week. The General Electric Co. inquiry for 5000 tons is still pending, and a number of other sizable tonnages have come out for figures. The H. B. Smith Co., Westfield, Mass., is in the market for 5000 tons of foundry iron, and the General Fire Extinguisher Co., Providence, R. I., is asking for prices on 2300 tons of No. 1X and No. 2X. The New York Air Brake Co., Watertown, N. Y., is inquiring for 200 tons of low phosphorus and has requested figures on an unspecified tonnage of No. 2 plain. A large proportion of the business placed last week was in relatively small lots. The smaller melters, although they are not covering for fourth quarter to the same extent as some of the large buyers, are placing considerable spot tonnage. Notable among orders placed was 625 tons of Dutch foundry iron, bought by the American Hardware Corporation, New Britain, Conn. Incidentally, it is reported that a cargo of Dutch iron will be afloat for delivery at Bridgeport, Conn., before the end of August. The entire shipment is said to have been sold. The American Car & Foundry Co., which was in the market for 300 tons for Berwick, Pa., has closed for a larger tonnage of various grades. A scarcity of barges resulting from a heavy movement of wheat has interfered with water shipments of pig iron from Buffalo. Furnace stocks at Buffalo have been reduced materially, it is said, and two producers have raised quotations on foundry iron to \$16.50, base. Higher prices have not yet been reflected in sales, however. The Adrian furnace, Dubois, Pa., was lighted Aug. 20.

Prices per gross ton, delivered New York district:

Buffalo No. 2 fdy., sil.	1.75	
to 2.25		\$20.91 to \$21.41
*Buf. No. 2, del'd east.		
N. J.	19.28 to 19.78	
No. 2, del'd east. N. J.		
tidewater	19.01 to 19.51	
East. Pa. No. 2 fdy., sil.		
1.75 to 2.25	19.89 to 21.52	
East. Pa. No. 2X fdy., sil.		
2.25 to 2.75	20.39 to 22.02	
East. Pa. No. 1X fdy., sil.		
2.75 to 3.25	20.89 to 22.52	

Freight rates: \$4.91 from Buffalo, \$1.39 to \$2.52 from eastern Pennsylvania.

\*Price delivered to New Jersey cities having rate of \$3.28 a ton from Buffalo.

**Steel Pipe.**—For a gas pipe line from Fowler, La., to Memphis, Tenn., 37,000 tons of steel has been placed. The line includes 210 miles of 18-in. pipe and eight miles of another size for river crossings.

**Plates, Shapes and Bars.**—Steel companies which provided in their third quarter contracts that all specifications for delivery during the quarter shall be entered on or before Sept. 10, are now engaged in checking up on their customers to see that the provision is complied with. One or two companies specified Sept. 15 as the

closing date for specifications, and a few made no change whatever in their contracts, which presumably means that such companies will be obliged to take specifications up to the end of September. However, it appears that the bulk of the tonnage of these

### Warehouse Prices, f.o.b. New York

	Base per Lb.
Plates and structural shapes.....	3.30c.
Soft steel bars, small shapes.....	3.25c.
Iron bars.....	3.24c.
Iron bars, Swed. charcoal.....	7.00c. to 7.25c.
Cold-fin. shafting and screw stock—	
Rounds and hexagons.....	3.40c.
Flats and squares.....	3.90c.
Cold-roll. strip, soft and quarter	
hard.....	5.15c. to 5.40c.
Hoops.....	4.50c.
Bands.....	4.00c.
Blue ann'l'd sheets (No. 10).....	3.85c. to 3.90c.
Long terme sheets (No. 24).....	5.60c. to 5.80c.
Standard tool steel.....	12.00c.
Wire, black annealed.....	4.50c.
Wire, galv. annealed.....	5.15c.
Tire steel, 1½ x ½ in. and larger.....	3.30c.
Smooth finish, 1 to 2½ x ¼ in.	
and larger.....	3.65c.
Open-hearth spring steel, bases.....	4.50c. to 7.00c.

	Per Cent
Machine bolts, cut thread:	Off List
¾ x 6 in. and smaller.....	60
1 x 30 lb. and smaller.....	50 to 50 and 10
Carriage bolts, cut thread:	
¾ x 6 in. and smaller.....	60
¾ x 20 in. and smaller.....	50 to 50 and 10
Coach screws:	
¾ x 6 in. and smaller.....	60
1 x 16 in. and smaller.....	50 to 50 and 10

	Per 100 Ft.
Boiler Tubes—	
Lap welded, 2-in.....	\$17.33
Seamless steel, 2-in.....	20.24
Charcoal iron, 2-in.....	25.00
Charcoal iron, 4-in.....	67.00

Discount on Welded Pipe		
Standard Steel—	Black	Galv.
¾-in. butt.....	46	29
¾-in. butt.....	51	37
1-3-in. butt.....	53	39
2½-6-in. lap.....	48	35
7 and 8-in. lap.....	44	17
11 and 12-in. lap.....	37	12

Wrought Iron—		
¾-in. butt.....	5	+19
¾-in. butt.....	11	+9
1-1½-in. butt.....	14	+6
2-in. lap.....	5	+14
3-6-in. lap.....	11	+6
7-12-in. lap.....	3	+16

Tin Plate (14 x 20 in.)		
	Prime	Seconds
Coke, 100 lb. base box....	\$6.45	\$6.20
Charcoal, per Box—	A	AAA
IC.....	\$9.70	\$12.10
IX.....	12.00	14.25
IXX.....	13.90	16.00

Terne Plate (14 x 20 in.)		
IC—20-lb. coating.....	\$10.00 to \$11.00	
IC—30-lb. coating.....	12.00 to 13.00	
IC—40-lb. coating.....	13.75 to 14.25	

Sheets, Box Annealed—Black, C. R.		
	One Pass	Per Lb.
Nos. 18 to 20.....	3.60c. to 3.80c.	
No. 22.....	3.75c. to 3.95c.	
No. 24.....	3.80c. to 4.00c.	
No. 26.....	3.90c. to 4.10c.	
No. 28*.....	4.05c. to 4.25c.	
No. 30.....	4.30c. to 4.50c.	

Sheets, Galvanized		
	Per Lb.	
No. 14.....	4.15c. to 4.35c.	
No. 16.....	4.00c. to 4.20c.	
No. 18.....	4.15c. to 4.35c.	
No. 20.....	4.30c. to 4.50c.	
No. 22.....	4.35c. to 4.55c.	
No. 24.....	4.50c. to 4.70c.	
No. 26.....	4.75c. to 4.95c.	
No. 28*.....	5.00c. to 5.20c.	
No. 30.....	5.40c. to 5.60c.	

\*No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

products under contract is covered by the Sept. 10 or Sept. 15 clause, and as the provision is a new one its effect on incoming business in the early part of September will be watched with interest. In a few instances buyers have already specified their September quotas with instructions to ship the last week of September; the mills receiving these requests, however, have declined to accept such shipping instructions and intend to ship at their convenience on or after Sept. 10. The object of the clause is plain—it is to prevent the carryover tonnage from one quarter to another which has resulted from heavy specifying in the final week or two of a quarter, particularly when an advance in price was in prospect. The mills hope to clear their books of third quarter tonnage by Oct. 1 or shortly thereafter, and to make the higher prices announced for the last quarter really effective from the first day of the new period. Just how successful the mills will be in establishing a \$2 advance for the last three months remains to be seen, but it is certain that the groundwork for an advance was never better prepared. Not all mills have announced fourth quarter prices; some apparently are waiting for the effect on buyers of the advances named by a few of the larger interests. Meanwhile, the steel trade is encouraged by the steady gain in specifications and new business, the total for the three weeks of August being well ahead of that for the corresponding period in July. On current business, prices are unchanged. Bars are being sold at 1.90c., Pittsburgh, to consumers and jobbers not covered by 1.85c., contracts, but plates and shapes are to be had at 2c., Eastern basing points, with 2.05c. applying on some small lots. Post & McCord have been awarded the steel contract for an addition to the Abraham & Straus department store, Brooklyn, which will take 20,000 tons. Plans for the Reynolds Tower Building, Lexington Avenue and Forty-second Street, which would take 17,000 tons of steel, may be abandoned.

Mill prices per lb., deliv'd New York: Soft steel bars, 2.19c. to 2.24c.; plates, 2.12½c. to 2.22½c.; struct. shapes, 2.14½c. to 2.19½c.; bar iron, 2.14c.

**Sheets.**—Almost without exception, makers of sheets have adopted a higher price schedule for fourth quarter. Blue annealed sheets remain at 2c., base, but there is an extra of 10c. per 100 lb. for widths exceeding 45 in., whereas the former dividing line was 40 in. Black sheets are being quoted at 2.75c. and galvanized at 3.60c. Many of the sheet companies inserted a clause in their third quarter contracts providing for final specifications to be in by Sept. 10, and it is stated that this provision will be rigidly enforced.

**Warehouse Business.**—Present activity compares favorably with that of the same period of July, so that the month's business is expected to reach a fair total. Sheet prices are

slightly firmer, probably reflecting announcements of higher mill prices for fourth quarter.

**Old Material.**—The strong undertone of a week ago has developed into an upward movement of prices affecting practically all grades of scrap. Brokers are paying higher prices, and in some instances are offering the full amounts received on their contracts. Yard steel is being bought at from \$10.50 per ton delivered Pottsville, Pa., to \$11.50 per ton, delivered Harrisburg, Pa. Steel mill stove plate is quoted by brokers at \$11 to \$11.50 per ton, delivered. The minimum price paid for specification pipe today is \$12.50 per ton, delivered Columbia, Pa. Within the past week the Bethlehem Steel Co. closed on more than 10,000 tons of No. 1 heavy melting steel for Bethlehem, at the previous purchase price of \$13 per ton. This would justify a buying price New York of \$9.85 per ton, but some brokers here are offering \$10 and as much as \$10.45 per ton for No. 1 steel to go to western Pennsylvania, delivering to Butler, Pa., and Weirton, W. Va., at \$15.30 to \$15.75 per ton.

*Dealers' buying prices per gross ton, f.o.b. New York:*

No. 1 heavy melting steel.	\$9.85 to \$10.25
Heavy melting steel (yard)	6.75 to 7.75
No. 1 hvy. breakable cast.	11.25 to 12.00
Stove plate (steel works)...	7.25 to 7.75
Locomotive grate bars....	7.25 to 7.75
Machine shop turnings....	6.25 to 6.50
Short shoveling turnings...	6.25 to 6.50
Cast borings (blast furn. or steel works).....	6.00 to 6.50
Mixed borings and turnings .....	6.00 to 6.50
Steel car axles.....	15.00 to 15.50
Iron car axles.....	23.50 to 24.00
Iron and steel pipe (1 in. dia., not under 2 ft. long)	8.75
Forge fire .....	6.50 to 6.75
No. 1 railroad wrought...	9.00 to 9.50
No. 1 yard wrot., long....	7.50 to 8.00
Rails for rolling.....	10.00 to 10.50
Cast iron carwheels.....	11.00 to 12.00
Stove plate (foundry)....	8.75 to 9.00
Malleable cast (railroad)...	10.00
Cast borings (chemical)...	10.75 to 11.25

*Prices per gross ton, deliv'd local foundries:*

No. 1 machy. cast.....	\$14.50 to \$15.50
No. 1 hvy. cast (columns, bldg. materials, etc.), cupola size.....	12.50 to 13.50
No. 2 cast (radiators, cast boilers, etc.) .....	12.00 to 13.00

**Reinforcing Bars.**—Business has continued at a fair rate during the last week, but no awards of outstanding size are reported. Interest is centered in a number of large pending projects on which early action is expected and which will require at least 5000 tons of bars. Foreign steel will be used in a number of fair-sized jobs which have been let recently, and distributors of imported material are actively seeking business in this territory. This has not seriously disturbed the price situation, and quotations are firm on the general run of orders.

**Cast Iron Pipe.**—Southern makers of pressure pipe continue to quote \$34 to \$35 per ton, Birmingham, but the market here shows some weakness with Northern foundries bidding \$35.60 and \$36.60 per ton, delivered New York, although there is an effort to maintain \$37.60 per ton, delivered, as the minimum. There is a fair volume of private buying in small lots. Amagansett, N. Y., opens bids

Aug. 22, on about 525 tons of water pipe; bids on centrifugal pipe are acceptable. On 3260 tons of 6, 8, 12 and 16-in. pipe for Fairlawn, N. J., a contractor in Orange, N. J., is reported to have been low bidder.

*Prices per net ton, deliv'd New York:*  
Water pipe 6-in. and larger, \$35.60 to \$37.60; 4-in. and 5-in., \$41.60 to \$42.60; 3-in., \$51.60 to \$52.60; Class A and gas pipe, \$4 to \$5 extra.

**Coke.**—Prices are substantially unchanged, with furnace grade ranging from \$2.65 to \$3 per ton, Connellsville, and foundry at about \$3.50 per

net ton, Connellsville. Shipments of foundry grade are reported to be improving. Special brands of foundry coke continue at \$4.85 per net ton, ovens, and delivered prices are \$8.56 per net ton to northern New Jersey, Jersey City and Newark and \$9.44 to New York and Brooklyn. The market on domestic sizes of by-product coke is weak, but the foundry grade appears quite firm and unchanged at \$9 to \$9.40, Newark or Jersey City, and \$10.06 to \$10.29, New York or Brooklyn.

## Cleveland

### August Steel Business Shows Upward Trend—Pig Iron Higher Following Large Buying

CLEVELAND, Aug. 21.—Orders for finished steel are holding up to the recent volume, and August business with most of the mills will show a gain over that of July. Contract buyers generally are taking their full monthly quotas. Outside mills are booking a fair amount of business in small lots of steel bars and structural material, nearly all of this business going at 1.90c., Pittsburgh. Most consumers are protected by 1.85c. contracts.

The plate market shows a firmer tone, although 1.85c. is still being named by some producers except for small lots. Cleveland mills show a firmer attitude on steel bars, but are still quoting 1.85c., mill, for desirable orders. One Ohio mill has named 2c., Pittsburgh, and 2.05c., Cleveland, for steel bars for the fourth quarter. Alloy steel bar prices have not been named for that delivery. These continue to move in very satisfactory volume and regular prices are being well maintained.

Consuming industries in this territory are keeping up to recent operations. Forge shops doing automotive work are generally running at full capacity, and the operation of a number of other industries is around 75 to 80 per cent. Activity in the building field is rather slow. Additional Union Terminal work in Cleveland will require 1400 tons and inquiries are out for several highway bridges in New York.

A number of sheet mills have followed in advancing prices for the fourth quarter.

The Cleveland furnace price on pig iron for outside delivery has been advanced 50c. a ton and other Lake furnace prices show a firmer tone.

**Pig Iron.**—A definite upward price trend developed in the past week on both foundry and steel making grades. The two Cleveland producers of merchant iron marked up their price on foundry and malleable iron 50c. a ton for outside shipment to \$17. While they had been holding rather closely to \$16.50 recently, \$16.25 was for some time a common price in competitive sections. For Cleveland delivery, the price is unchanged at \$17.50, furnace. Another Lake furnace has advanced the price 25c. to 50c. a ton, now quoting \$17 to \$17.50. In the Valley district, \$16.75 seems now to be the ruling minimum price. The market in Michigan, which has ranged recently from \$17.50 to \$18, is now established on an \$18 basis. The waiving or cutting in two of the silicon differentials had been a rather common practice for some time. However, with the price advance producers

announce that full differentials will be maintained. The recent purchase of basic iron by an Ohio steel maker from a Cleveland furnace indicated that grade was firm in the Valley district at \$16. Now Valley producers have advanced their asking price to \$16.50 and it seems doubtful if basic can be had at the lower figure. The American Steel Foundries is inquiring for 3000 to 5000 tons of basic iron for its Alliance, Ohio, plant for delivery up to Dec. 1. Buying of foundry and malleable iron for the remainder of the year continued at a brisk rate during the past week, and Cleveland interests sold 63,000 tons. Several sales in lots up to 500 tons or more were made at the price advance. However, it is expected that the advance will have the tendency of checking the buying movement. The order books of several furnaces are so well filled that they are not soliciting business for the remainder of the year. Shipping orders are heavy and will show considerable gain this

### Warehouse Prices f.o.b. Cleveland

	Base per Lb.
Plates and struct. shapes.....	3.00c.
Soft steel bars.....	3.00c.
Reinforc. steel bars.....	2.25c.
Cold-fin. rounds and hex.....	3.65c.
Cold-fin. flats and sq.....	4.15c.
Hoops and bands.....	3.65c.
Cold-finished strip .....	*5.95c.
Black sheets (No. 24).....	3.40c.
Galvanized sheets (No. 24).....	4.25c.
Blue ann'd sheets (No. 10).....	3.25c.
No. 9 ann'd wire, per 100 lb.....	\$2.85
No. 9 gal. wire, per 100 lb.....	3.30
Com. wire nails, base per keg.....	2.85

\*Net base, including boxing and cutting to length.



month over those of July. The automotive industry continues to specify freely and considerable of the recent buying came from that source.

**Prices per gross ton at Cleveland:**

N'th'n fdy., sil. 1.75 to 2.25	\$18.00
S'th'n fdy., sil. 1.75 to 2.25	21.50
Malleable.....	18.00
Ohio silvery, 8 per cent....	28.00
Basic Valley furnace.....	\$16.00 to 16.50
Stand. low phos., V'ley furn..	26.50

Prices, except on basic and low phosphorus, are delivered Cleveland. Freight rates: 50c. from local furnaces; \$3 from Jackson, Ohio; \$6 from Birmingham.

**Semi-finished Steel.**—A Cleveland producer announces that it will probably name \$33, Cleveland, for sheet bars, billets and slabs for the fourth quarter, following a Youngstown mill that has announced that price f.o.b. Youngstown. Specifications continue heavy against \$32 to \$33 contracts. A northern Ohio mill has named \$39, Pittsburgh, as its price for forging billets for the fourth quarter.

**Iron Ore.**—The consumption of Lake Superior ore during July amounted to 4,632,907 tons, a decrease of 34,586 tons from June. The amount consumed in July, last year, was 4,294,215 tons. On Aug. 1, ore stocks at furnaces amounted to 21,823,615 tons and the total at furnaces and Lake Erie docks was 27,208,662 tons, or more than 4,000,000 tons below the stocks on the same date a year ago, when they amounted to 31,331,092 tons. Central district furnaces during July consumed 2,251,779 tons, a decrease of 53,470 tons for the month. Lake front furnaces used 2,205,262 tons, a gain of 14,237 tons for July. Eastern furnaces used 82,327 tons, a gain of 9483 tons. All-rail furnaces used 93,539 tons, a decrease of 4836 tons.

**Sheets.**—Several more producers have announced that their fourth quarter prices will be 2.75c. for black sheets, 2c. for blue annealed, with a 10c. per 100 lb. extra for 45 in. and wider material, 3.60c. for galvanized sheets and 4c. for auto body sheets, all Pittsburgh base. Consumers are showing no interest in fourth quarter contracts. The one-half of 1 per cent discount for cash within 10 days has also been adopted by additional manufacturers. While specifications continue good, they were not as heavy in the past week as during the previous week. Prices on black sheets are firmer, 2.65c. now being the usual minimum. Blue annealed and galvanized sheets are unchanged for current delivery, the former being available at 1.90c., Pittsburgh, and the latter at 3.45c., Valley.

**Strip Steel.**—Specifications for hot-rolled strip are fair, but there is little new business, as most buyers are covered through September. There is a tendency to stiffen up prices to 1.90c., Pittsburgh, for wide material for the fourth quarter. However, some of the mills seem willing to take hoop and band sizes at the prices that prevailed during the present quarter, or 2c. to 2.10c. Cold-rolled strip is rather commonly quoted at 2.65c., Cleveland, for 3 tons or over, al-

though mills are able to get 2.75c. for assorted lots.

**Cold-Finished Steel Bars.**—While makers generally have advanced the price \$2 a ton to 2.25c., Cleveland, some producers are giving their customers an opportunity to place orders for the remainder of the quarter at 2.15c. As most buyers were previously covered at the lower price, the advance will have little effect before October.

**Wire Products.**—The demand is rather slow. Price shading is still reported to \$2.50 per keg on nails and to 2.35c. per lb. on wire, but this is attributed to some jobbers who have contracts at lower prices that expire Oct. 10.

**Reinforcing Bars.**—Inquiry is out for 950 tons for the Lakeside Hospital buildings, Cleveland. The market continues irregular, with billet steel bars commonly quoted at 1.85c., Cleveland, or delivered at that price for local work, and rail steel bars at 1.75c., mill.

**Warehouse Business.**—The demand is well diversified and is about normal for August. Business from the building field is light. Regular quotations are generally being maintained.

**Coke.**—Specifications against foundry coke contracts show some gain, but new business is light. Prices are unchanged at \$3.50 to \$4.85 oven, for standard Connellsville foundry coke. The price of Ohio by-product foundry coke will probably be reestablished at \$7.75, Painesville, for September delivery. Heating coke is firmer, being quoted at \$2.75, ovens, at which some business has been taken for forward shipment.

**Bolts, Nuts and Rivets.**—The demand for bolts and nuts continues fair. Orders from the automotive industry are quite satisfactory. Rivets are moving rather slowly, but at the recent volume. Prices are well maintained.

**Old Material.**—Efforts of dealers and producers to get better prices for scrap are meeting with considerable success. Heavy melting steel scrap was advanced 25c. a ton in the past week and machine shop turnings and blast furnace grades were marked up 50c. a ton. These advances follow a 25c. per ton advance on some grades reported a week ago. The only sale to a consumer was 500 tons of No. 1 heavy melting steel taken by a local mill at \$14.50. The higher prices have not been established as yet by purchases by consumers, and dealers having outstanding orders are resisting the advances. However, with an advancing market the supply has become rather scarce and dealers have been forced to pay more for material for which mills are asking shipments. Dealers have paid \$13.50 for heavy melting steel and as high as \$8.25 for machine shop turnings. Those who sold short have been caught by the advance, for the prices they are now paying are as high or higher than the

prices of their outstanding orders with the mills.

**Prices per gross ton delivered consumers' yards:**

Basic Open-Hearth Grades	
No. 1 heavy melting steel.....	\$13.25 to \$13.50
No. 2 heavy melting steel.....	12.75 to 13.00
Compressed sheet steel.....	12.50 to 13.00
Light bundled sheet	
stamp'gs.....	11.50 to 11.75
Drop forge flashings.....	11.50 to 11.75
Machine shop turnings.....	7.75 to 8.25
No. 1 railroad wrought.....	11.50 to 12.00
No. 2 railroad wrought.....	13.50 to 13.75
No. 1 bushelling.....	10.50 to 11.00
Pipes and flues.....	9.00 to 9.50
Steel axle turnings.....	12.50 to 13.00
Acid Open-Hearth Grades	
Low phos. forging crops.....	16.00 to 16.50
Low phos., billet, bloom and slab crops.....	17.00 to 17.50
Low phos. sheet bar crops.....	16.50 to 17.00
Low phos. plate scrap.....	15.50 to 16.00
Blast Furnace Grades	
Cast iron borings.....	9.50 to 9.75
Mixed bor'gs and short turn'gs.....	9.50 to 9.75
No. 2 bushelling.....	9.50 to 9.75
Cupola Grades	
No. 1 cast.....	16.00 to 16.50
Railroad grate bars.....	11.00 to 12.00
Stove plate.....	12.00 to 12.50
Rails under 3 ft.....	16.75 to 17.25
Miscellaneous	
Railroad malleable.....	15.00 to 15.50
Rails for rolling.....	16.25 to 16.50

## Continental Steel Corporation Acquires New Office Quarters

The Continental Steel Corporation, Kokomo, Ind., recently formed by a merger of the Kokomo Steel & Wire Co., Kokomo; the Chapman-Price Steel Co., Indianapolis, and the Superior Sheet Steel Co., Canton, Ohio, has purchased the former administration building of the Haynes Automobile Co. at Kokomo and has removed its general offices into the new quarters. The building is a two-story brick structure, containing 13,000 sq. ft. of floor space. On the first floor are located the executive, sales, purchasing and traffic departments and the second floor is given over to the accounting, statistical, pay and time and publicity departments, with some space for storage.

## Desulphurizing Pig Iron With Alumina Slag

Production of high-alumina slag in the blast furnace is described in Technical Paper 425, Bureau of Mines, by T. L. Joseph, S. P. Kinney and C. E. Wood. (Brief notes on the use of such slags for high early-strength cement were printed in THE IRON AGE for June 21, page 1752.) This 32-page bulletin gives all the particulars concerning the runs and discusses the mutual interactions between slag and metal, with particular reference to desulphurization.

Members of the Electric Hoist Manufacturers Association sold about 11 per cent fewer hoists in July than in June, but the value of such orders increased 13 per cent as compared with June. Shipments were 9.4 per cent less in July than in June.

## San Francisco

### Alternate Bids on 7200 Tons of Plates and 22,000 Tons of Cast Pipe Taken by Utility District.

SAN FRANCISCO, Aug. 18 (*By Air Mail*).—Demand for steel products, as fall approaches, is showing some improvement and inquiries are becoming more numerous. One of the most important developments of the year is seen in the revival of oil field operations in the Santa Fe district in Los Angeles, and it is estimated that more than 60 new rigs are in the course of construction at present. This activity has resulted in a rather heavy demand for oil country goods.

Construction on the Pacific Coast so far this year has been below that of last year. Seattle, Wash., was the only city to show a gain in the valuation of permits issued in the first half of this year, compared with the total for the same period last year, the gain having been approximately \$7,000,000. Los Angeles and San Francisco showed a decrease of about \$6,000,000, and Portland, Ore., a drop of \$8,000,000.

**Pig Iron.**—Both sales and inquiries for foundry pig iron this week were restricted to small lots, and foundry operations have shown little or no improvement. No change in quotations has occurred.

#### Prices per gross ton at San Francisco:

*Utah basic .....	\$25.00 to \$26.00
*Utah fdy., sil. 2.75 to 3.25 .....	25.00 to 26.00
**Indian fdy., sil. 2.75 to 3.25 .....	24.00 to 25.00

\*Delivered San Francisco.

\*\*Duty paid, f.o.b. cars San Francisco.

**Bars.**—Inquiries for reinforcing bars have increased. Awards this week exceeded 800 tons and included 225 tons for an apartment in Los Angeles. Bids will be opened on Sept. 7 for 421 tons for three spillway projects for the East Bay Municipal Utility District, Oakland, Cal. Bids on a bridge at Salem, Ore., requiring 260 tons, will be opened Sept. 4 and the State Highway Commission, at Sacramento, Cal., will let 395 tons for paving work in Sonoma County on Sept. 5. Low prices continue to prevail on out-of-stock material in the San Francisco district.

**Plates.**—Bids were opened this week on one of the most important projects to come up for figures this year, approximately 7200 tons of 5/16 to 3/4-in. material being called for in water distributing mains for the East Bay Municipal Utility Dis-

trict at Oakland. Alternate bids were also taken on cast iron, welded steel, lock-bar and reinforced, steel-lined concrete pipe. The engineers of the district are now at work tabulating the figures to determine just who is the low bidder. The only award of the week called for 287 tons of 14 to 22-in. welded steel pipe for Uplands, Cal., placed with the West Coast Pipe & Steel Co. of Los Angeles. The general range of prices continues at 2.25c. to 2.30c., with a few of the smaller companies quoting 2.20c., c.i.f. Pacific ports.

**Shapes.**—Demand for structural steel continues well sustained not only in the San Francisco district but in the Los Angeles district as well. The Pacific Coast Steel Co. was low bidder on 1400 tons for sheds for Pier 45 in San Francisco. Outstanding among new inquiries is 700 tons for an apartment in San Francisco. Mill prices on plain structural shapes are firm at 2.35c., c.i.f. Pacific ports.

**Cast Iron Pipe.**—Seattle has placed 200 tons of 4 and 6-in. Class B pipe for Thirty-fourth Avenue, N. W., with Fiorito Brothers and 271 tons of 48-in. Class B for a sewer in West Hanford Street, with Geo. Nelson. Bids were opened this week on 22,325 tons of 24 to 44-in. Class C pipe for the East Bay Municipal Utility District, but it is not yet known whether cast

iron or welded, lock-bar or reinforced concrete pipe will be used. The Pacific States Cast Iron Pipe Co. was low bidder on 318 tons of 2-in. Class B pipe for Los Angeles. Bids were opened this week on 114 tons of 8-in. Class B pipe for Santa Cruz, Cal.; the Pacific States Cast Iron Pipe Co. being low bidder on Class 150. The United States Cast Iron Pipe & Foundry Co. was low bidder on 23,247 tons of 16 to 36-in. Classes B and C pipe for Dallas, Tex. Santa Ana, Cal., will open bids on Aug. 27 for 320 tons of 2 to 16-in. Class B pipe. San Diego, Cal., takes bids on Sept. 14 for 355 tons of 4 to 10-in. Class B. At Seattle, Wash., Tony Jakoboni was low bidder on 469 tons of 6 to 30-in. Class C pipe for the improvement of Forty-second Avenue, South, and S. A. Moceris was low on 282 tons of 6 to 12-in. Classes B and C for the improvement of Sixth Avenue, N. W.

**Standard Pipe.**—Distributors of standard steel pipe report a slight improvement in movement, but no outstanding sales or inquiries were noted. A decided revival of interest in oil country goods, especially well casing, has occurred, as a result of the bringing in of several gushers in the Santa Fe field in southern California. Most of the sales have been taken from the stocks of Los Angeles distributors, but it is understood these interests will replace the material at once.

**Coke.**—Because of the quiet conditions prevailing in the foundry field, movement of coke is by no means heavy and few large sales have been reported.

## Youngstown

### Specifications and Steel Production Heavy—Sheet Prices Are Uneven—Scrap Is Strong

YOUNGSTOWN, Aug. 21.—The rate of steel output in this district is still 80 per cent or higher, and the flow of specifications is so strong that producers generally feel that a reasonably full engagement of productive capacity is assured for the next 30 days at least. The Republic Iron & Steel Co. has all of its open-hearth furnaces in production, both here and at its Warren, Ohio, works. This is partly explained by the fact that at present it is banking a good many ingots at both plants to have a sufficient supply for the Warren plant for a period of six or eight weeks, when, on account of a suspension of the Trumbull-Cliffs furnace for relining and repairs, the Warren steel works will be operated on cold iron.

Incidentally, a strong market locally for scrap is due in part to some extra demands occasioned by the need of reserve supplies of steel by this company. This demand, coupled with the fact that steel works in the Canton district are so heavily engaged and are taking so much scrap that supplies originating in the Detroit district which move by rail have been going to that point, has made it

hard for either dealers or consumers to get much. The amount of Detroit scrap available for Youngstown is further limited by the fact that Cleveland and Buffalo melters are drawing heavily upon the offerings and shipping by boat. Since the water charge is much less than by rail, the companies able to ship by water are able to pay a higher price than those drawing supplies by rail. Not much scrap can move past Pittsburgh from the East, since dealers there are still actively trying to cover short sales.

The situation in scrap is having a strengthening effect upon the prices of pig iron. While business in the past week has not amounted to much, the feeling is general that pig iron is too low in relation both to costs and to the prices that scrap commands. An effort is being made to put foundry iron back to \$17, Valley furnace, for No. 2 grade, and the steel companies do not appear anxious for more business in basic grade at \$16, although a sale of 1000 tons is reported at that price.

The Youngstown Sheet & Tube Co. has announced \$33 as its fourth quarter price on sheet bars. This is an

#### Warehouse Prices, f.o.b. San Francisco

	Base per Lb.
Plates and struc. shapes .....	3.15c.
Soft steel bars .....	3.15c.
Small angles, 3/16-in. and over .....	3.15c.
Small angles, under 3/16-in. ....	3.55c.
Small channels and tees, 3/4-in. to 2 3/4-in. ....	3.75c.
Spring steel, 1/4-in. and thicker ..	5.00c.
Black sheets (No. 24) .....	5.00c.
Blue ann'l'd sheets (No. 10) .....	4.00c.
Galv. sheets (No. 24) .....	5.40c.
Struc. rivets, 1/2-in. and larger .....	5.65c.
Com. wire nails, base per keg .....	\$3.40
Cement c'd nails, 100-lb. keg .....	3.40



advance of \$1 a ton over the third quarter contract price. There is a good movement of sheet bars on contract, in keeping with the fact that sheet business is good, and the mills are running 85 per cent or more of capacity. An advance of \$2 a ton over what have been commonly regarded as the market prices on sheets is being sought on fourth quarter business. On current business, however, the market is no stronger than it has been and in spots is actually a shade weaker. It is no longer denied that 1.90c., base Pittsburgh, and in some cases f.o.b. Youngstown, has been done on blue annealed sheets; indeed, that price still is being quoted on business that is called desirable and 1.85c., base Youngstown, is reported to have come out on some No. 7 gage material in competition with

light plates. On galvanized sheets, the current market is still 3.40c. to 3.50c., base, and in some cases the price is f.o.b. Youngstown instead of Pittsburgh.

Bars and small shapes are well maintained in price. Contract buyers are still getting supplies at 1.85c., base, but on new business the mills are holding to 1.90c. Pipe business is good in seamless oil country goods and for oil and gas lines, but lap-welded oil well pipe and butt-welded pipe for building and construction are slow. Tin plate and strips are moving well. The outlet of the latter for the Republic Iron & Steel Co. is materially improved by its acquisition of Steel & Tubes, Inc., Cleveland, which has been using 5000 tons a month and, with new plants to be started, will take double that amount.

## Birmingham

### River Shipments of Pig Iron Feature Quiet Market—Scrap Stronger

BIRMINGHAM, Aug. 21.—Pig iron demand is still largely for spot delivery, with quotations at \$15.50, base. Merchant producers continue to ship in excess of their current output. Interest in the fourth quarter is passive, and practically no attention has been given it. The Tennessee company is reported to be shipping pig iron to the Orient. There have been a number of movements by barge down the Warrior River. The Warrior River service has handled so far this month about 2600 tons. Shipments have also been made on the company's own barges. The only recent change in furnace operations was by the Tennessee company, which switched Ensley No. 6 from basic to foundry. As a result, there are now nine furnaces on foundry, six on basic, one on ferromanganese and one on recarburizing iron, a total of 17. The total has remained the same for six weeks. The Republic Iron & Steel Co. is rebuilding its No. 2 furnace. The rebuilt Gulf States Steel Co. furnace is now scheduled to go back in blast about Sept. 20.

Prices per gross ton, f.o.b. Birmingham dist. furnaces:

No. 2 fdy., 1.75 to 2.25 sil.	\$15.50
No. 1 fdy., 2.25 to 2.75 sil.	16.00
Basic .....	\$15.00 to 16.00

**Finished Steel.**—Demand for steel is holding at a favorable rate. August tonnage, through Aug. 17, was ahead of the same period in July and also of August, last year. Sheets are active and prices are steady, no changes in quotations having been made during the past several weeks. Open-hearth furnaces in operation continue to number 14, the Tennessee company having 11 and the Gulf States Steel Co. three. Structural steel fabricators report several orders of fair tonnage. The Nashville Bridge Co. was low bidder last week for the Louisiana State bridges at Chef. Mentour and the Rigolets, near New Orleans. The con-

tract, calling for 2800 tons, will be awarded this week. The Birmingham Tank Co. is beginning the manufacture of small pressure tanks and septic tanks, in addition to its principal line of storage tanks.

**Cast Iron Pipe.**—Some additional tonnage, in small lots, has been placed with all of the local pressure-pipe plants. The volume last week was

better than for some time past. The market is firmer at \$34 to \$35 per net ton, Birmingham, for 6-in. and larger. This price has held since early in July. Plant operations are said to be around 75 per cent, and current shipments are in excess of production. Present activity is not up to the level prevailing at this time last year. Last August there was a large carryover from the spring and early summer buying, which did not develop to the same extent this year.

**Coke.**—Little interest is being shown in coke. Present foundry requirements were booked some time ago, and only a small amount of spot business is coming in. Shipments are at a moderate rate. Quotations of \$5, Birmingham, for both spot and contract coke are being maintained.

**Old Material.**—Continued improvement in demand for No. 1 cast and steel grades is reported. No. 1 cast has been advanced 50c. a ton to \$14.50. No other price changes have yet been made. The outlook in all lines is somewhat better, and indications have been pointing upward for several weeks.

Prices per gross ton, deliv'd Birmingham dist. consumers' yards:

Heavy melting steel.....	\$8.50 to \$9.00
Scrap steel rails.....	11.00 to 11.50
Short shoveling turnings..	7.50 to 8.00
Cast iron borings.....	8.00
Stove plate .....	13.50
Steel axles .....	19.00 to 20.00
Iron axles .....	21.00 to 22.00
No. 1 railroad wrought...	10.00 to 10.50
Rolls for rolling.....	13.00
No. 1 cast.....	14.50
Tramcar wheels .....	12.50 to 13.50
Cast iron carwheels.....	12.00 to 13.00
Cast iron borings, chem...	13.50 to 14.00

## Buffalo

### Pig Iron and Scrap Markets More Active—Steel Mills Operating at Close to Capacity

BUFFALO, Aug. 21.—Pig iron inquiry and orders have picked up. The General Fire Extinguisher Co. wants 2500 tons of foundry; the H. B. Smith Co. has an inquiry out for 2000 tons; the Whitin Machine Works has issued one for 3000 to 5000 tons; a New York State melter seeks 1000 tons. The American Car & Foundry Co. bought 300 to 500 tons for Berwick, Pa., and the American Hardware Corporation bought 625 tons of foundry and malleable. Buffalo furnaces are adopting a stiffer price policy. Two of the local furnaces will not go below \$16.50 on New England delivery and are asking full differentials. One recently sold a tonnage of No. 1X iron at \$18, furnace, for Eastern delivery. The Hanna Furnace Co. has placed another stack in blast.

Prices per gross ton, f.o.b. furnace:

No. 2 fdy., sil. 1.75 to 2.25 .....	\$17.00
No. 2X fdy., sil. 2.25 to 2.75 .....	17.50
No. 1X fdy., sil. 2.75 to 3.25 .....	18.50
Malleable, sil. up to 2.25 .....	17.50
Basic .....	\$16.50 to 17.00
Lake Superior charcoal.....	27.28

**Finished Iron and Steel.**—Mills are operating at close to capacity. A tendency toward stiffer prices on bars, shapes, plates and sheets is notice-

able. Strip steel is active and prices on hot and cold-rolled show a firmer tendency. Bins for a cement company will require 150 tons of reinforcing bars, and the flooring for the new Rand Building will take 350 tons of the same material. West Side High School, Erie, Pa., will take 500 to 600 tons of reinforcing steel.

**Old Material.**—A sale of about 12,000 tons of No. 1 heavy melting steel at \$15 featured a more active week. Another consumer bought 10,000 tons of heavy melting steel in Detroit for \$11.75, which means \$13.50, delivered at Buffalo. This company's previous Buffalo purchase was at \$13.75, and it

#### Warehouse Prices, f.o.b. Buffalo

	Base per Lb.
Plates and struct. shapes.....	3.40c.
Soft steel bars.....	3.30c.
Reinforcing bars .....	2.75c.
Cold-fin. flats, sq. and hex.....	4.45c.
Rounds .....	3.95c.
Cold-rolled strip steel.....	5.85c.
Black sheets (No. 24).....	4.20c.
Galv. sheets (No. 24).....	4.70c. to 5.05c.
Blue ann'd sheets (No. 10).....	3.70c.
Com. wire nails, base per keg.....	\$3.65
Black wire, base per 100 lb.....	3.90

declines to pay Buffalo dealers more than that figure. It is difficult to indicate clearly the exact market on No. 1 heavy melting steel, as two of the largest consumers are paying all the way from \$13.75 to \$15. One is not rigid on inspection in the sense that what is rejected for its purposes as heavy melting steel will be accepted under another classification. Quotations on No. 2 heavy melting steel and on hydraulic compressed are based upon the \$13.75 price for heavy melting steel paid by the largest consumer, its differential on these grades being \$1.50. On the other hand, \$14 has been paid for No. 1 busheling, though the No. 1 busheling price paid by the largest consumer of this grade is \$12.25. There have been some sales of No. 1 machinery cast at \$14.50 and some stove plate was sold at \$14.

Prices per gross ton, f.o.b. Buffalo consumers' plants:

Basic Open-Hearth Grades	
No. 1 heavy melting steel.	\$14.00 to \$15.00
No. 2 heavy melting steel.	12.25
Scrap rails	13.00 to 13.50
Hydraulic comp. sheets.	12.25
Hand bundled sheets.	8.00 to 8.50
Drop forge flashings.	12.00 to 12.50
No. 1 busheling.	12.25
Hvy. steel axle turnings.	12.00 to 12.50
Machine shop turnings.	7.00 to 7.50
No. 1 railroad wrought.	11.00 to 11.50

Acid Open-Hearth Grades	
R'l'd knuckles and couplers	15.00 to 15.50
R'l'd coil and leaf springs	16.00 to 16.50
Rolled steel wheels.	15.50 to 16.00
Low phos. billet and bloom ends	16.00 to 16.50

Electric Furnace Grades	
Hvy. steel axle turnings.	12.00 to 12.50
Short shov. steel turnings.	10.00 to 10.50

Blast Furnace Grades	
Short shov. steel turnings.	10.00 to 10.50
Short mixed borings and turnings	9.50 to 10.00
Cast iron borings.	9.50 to 10.00
No. 2 busheling.	9.00 to 9.25

Rolling Mill Grades	
Steel car axles	16.50 to 17.00
Iron axles	19.50 to 20.00

Cupola Grades	
No. 1 machinery cast.	14.50 to 15.00
Stove plate	13.50 to 14.00
Locomotive grate bars.	11.25 to 11.75
Steel rails, 3 ft. and under.	16.00 to 16.50
Cast iron carwheels.	12.00 to 12.50

Malleable Grades	
Industrial	15.00 to 15.50
Railroad	15.00 to 15.50
Agricultural	15.00 to 15.50

## Scrap Institute Opens Offices in New York

The Institute of Scrap Iron and Steel has opened offices at 11 West Forty-second Street, New York, with Benjamin Schwartz, director general of the new organization, in charge. It is planned to begin work immediately on the establishment of machinery for arbitration of disputes. A national conference for the adoption of a code of business practices is under consideration, the meeting to be under the auspices of the Federal Trade Commission. Efforts will also be made to organize 11 chapters of the institute in various Eastern cities. The director general of the institute is seeking suggestions from interested dealers and others in the iron and steel scrap industry.

## St. Louis

### Scrap Prices Advance in a More Active Market—Some Fourth Quarter Pig Iron Inquiry Appears

ST. LOUIS, Aug. 21.—While purchasing of pig iron continues mainly for the present quarter, some fourth quarter inquiry has appeared, and generally melters are taking more interest in supplies. Prices are asked on 800 tons of foundry by an East Side jobbing plant for delivery through the final three months, and another fourth quarter inquiry calls for about 2500 tons. Shipments continue to make a good showing, despite reduced melt in some quarters because of hot weather. No change in prices has occurred, and the market undertone is, if anything, slightly firmer. Actual sales reported total about 5000 tons, equally divided between the leading district producer and Southern blast furnaces. The largest single transaction was 1000 tons of malleable, taken by a nearby Illinois melter for shipment during the rest of the present quarter. Implement and stove makers continue to order freely, and jobbing plants are figuring more prominently in buying than heretofore.

Prices per gross ton at St. Louis:

No. 2 fdy., sil.	1.75 to 2.25, f.o.b.
Granite City, Ill.	\$18.50 to \$19.00
N't'n No. 2 fdy., deliv'd St. Louis.	19.66
Southern No. 2 fdy., deliv'd.	19.92
Northern malleable, deliv'd.	19.66
Northern basic, deliv'd.	19.66

Freight rates: 81c. Granite City to St. Louis; \$2.16 from Chicago; \$4.42 from Birmingham.

**Coke.**—Aside from a slight quickening in demand for domestic sizes, no change has taken place in the coke situation. Deliveries of metallurgical grades are fairly satisfactory, despite curtailed melts at numerous plants, occasioned by the extreme temperatures. Fair contracting by industrial consumers for the rest of the year is reported by by-product plants. The bakery and water gas interests have contracted for slightly heavier tonnages than at the corresponding period a year ago.

**Finished Steel.**—The leading district producer of sheets reports all units of its sheet division operating at full time, and a backlog sufficient to insure that pace for the next few weeks. Its plate mill is running at a 65 per cent rate. Sheet demand is above expectations and comes from a diversity of consumers. Tank plate demand suffers from apathy on the part of the oil interests. Warehousemen report August business to date very good, particularly in tubing and the general run of building material. The reinforcing bar market is featured by numerous small lettings, ranging from 25 to 75 tons. The only awards of moment reported were the following: 300 tons for a new St. Louis County building of the Ladies of the Sacred Heart, to the Laclede Steel Co.; 145 tons for Riley sewer, St. Louis, and 120 tons for new Kennard Public School, St. Louis, to the Missouri Rolling Mill Co.

**Old Material.**—A decidedly firmer tone has developed in scrap, and for the first time in several months specific advances were made in dealers' lists. Among the items marked up were heavy melting and shoveling steel, miscellaneous rails, switches and guards, knuckles and couplers and steel angle bars. Industrial consumers have been booking fair orders, and for the most part their scrap stocks are low. Yard stocks are also generally under the average for this season during the past five years. This fact, coupled with smaller railroad offerings, has caused the melters to take stock of their raw material supplies. Rails and rolling mill grades generally are in better demand, and more activity is noted in foundry stock. While actual buying has not gained heavily in volume, it is more diversified, and generally improved conditions from the seller's viewpoint are looked for by September. Marketing by the carriers fell sharply from totals of recent weeks. The only lists were 700 tons offered by the Gulf Coast Lines and 208 cars advertised by the Chicago, Rock Island & Pacific.

Dealers' buying prices, per gross ton, f.o.b. St. Louis district:

Heavy melting steel.	\$11.00 to \$11.25
No. 1 locomotive tires.	11.75 to 12.00
Heavy shoveling steel.	11.00 to 11.25
Miscell. stand.-sec. rails, includ'g frogs, sw'ches and guards, cut apart.	12.50 to 13.00
Railroad springs	13.00 to 13.50
Bundled sheets	7.75 to 8.25
No. 2 railroad wrought.	11.00 to 11.50
No. 1 busheling.	9.00 to 9.50
Cast iron borings.	8.25 to 8.75
Iron rails	13.00 to 13.50
Rails for rolling.	13.00 to 13.50
Machine shop turnings.	7.00 to 7.50
Steel car axles.	18.00 to 18.50
Iron car axles.	25.50 to 25.75
Wrot. iron bars and trans.	18.25 to 18.75
No. 1 railroad wrought.	9.00 to 9.50
Steel rails, less than 3 ft.	15.00 to 15.50
Steel angle bars.	12.50 to 13.00
Cast iron carwheels.	13.00 to 13.50
No. 1 machinery cast.	13.00 to 13.50
Railroad malleable	11.50 to 12.00
No. 1 railroad cast.	13.00 to 13.50
Stove plate	11.00 to 11.50
Agricult. malleable	11.50 to 12.00
Relay. rails, 60 lb. and under	20.50 to 23.50
Relay. rails, 70 lb. and over	26.50 to 29.00

### Warehouse Prices, f.o.b. St. Louis

	Base per Lb.
Plates and struc. shapes.	3.25c.
Bars, soft steel or iron.	3.15c.
Cold-fin. rounds, shafting, screw stock	3.75c.
Black sheets (No. 24)	4.45c.
Galv. sheets (No. 24)	5.25c.
Blue ann'd sheets (No. 10)	3.60c.
Black corrug. sheets (No. 24)	4.50c.
Galv. corrug. sheets	5.30c.
Structural rivets	3.75c.
Boiler rivets	3.75c.
Per Cent Off List	
Tank rivets, 7/16-in. and smaller, 100 lb. or more.	70
Less than 100 lb.	65
Machine bolts	60
Carriage bolts	60
Lag screws	60
Hot-press. nuts, sq., blank or tapped, 200 lb. or more.	60
Less than 200 lb.	50
Hot-press. nuts, hex., blank or tapped, 200 lb. or more.	60
Less than 200 lb.	50



## Boston

### Further Advance in Scrap Prices—Large Inquiries for Pig Iron Are Pending

BOSTON, Aug. 21.—Although Buffalo pig iron producers have advanced prices 50c. a ton and non-competitive business has been booked at \$17 a ton, furnace, for No. 2X and at \$18 for No. 1X, iron from that district is still offered at lower prices, and there is as yet no perceptible stiffening in prices for irons made east of Buffalo. Sales in the past week were larger than those for the previous week, and indications are they will be still larger this week. The Whitin Machine Works, Whitinsville, Mass., will probably today close on 500 tons of iron, silicon 3 to 3.50 per cent, and on 500 tons of higher silicon iron; the General Fire Extinguisher Co., Providence, R. I., will buy 1000 tons of No. 2X and 1000 tons of No. 1X; a Connecticut foundry is in the market for 1200 tons of No. 2X and No. 1X; four each, mostly 2X and 1X; and several other large consumers seek 1000 tons other melters are inquiring for smaller tonnages. The General Electric Co. is asking for bids on a sizable tonnage for its New England plants.

Foundry iron prices per gross ton deliv'd to most New England points:

*Buffalo, sil. 1.75 to 2.25..	\$20.91 to \$21.41
*Buffalo, sil. 2.25 to 2.75..	21.41 to 21.91
†Buffalo, sil. 1.75 to 2.25..	19.78 to 20.28
†Buffalo, sil. 2.25 to 2.75..	20.28 to 20.78
East Penn., sil. 1.75 to 2.25	23.15 to 23.65
East Penn., sil. 2.25 to 2.75	23.65 to 24.15
Va., sil. 1.75 to 2.25.....	25.71
Va., sil. 2.25 to 2.75.....	26.21
Ala., sil. 1.75 to 2.25.....	22.41 to 24.27
Ala., sil. 2.25 to 2.75.....	22.91 to 24.77

Freight rates: \$4.91 all rail and \$3.78 rail and water from Buffalo; \$3.65 from eastern Pennsylvania; \$5.21 all rail from Virginia; \$6.91 to \$8.77 from Alabama.

\*All rail rate. †Rail and water rate.

Shapes and Plates.—Mill prices on standard shapes and plates are stiffer than they have been in months. While some material is still being delivered on old contracts at 1.85c. per lb., base Pittsburgh, practically all new business for the current quarter is being

taken at 1.90c. For fourth quarter, 2c., Pittsburgh, is being quoted. The market is bare of sizable fabricated structural steel prospects, but most shops are well filled up with work and a great many small jobs are being taken.

Bars.—The market for steel bars is fairly active and firm at 1.90c. to 2c., base Pittsburgh. Average specifications against contracts are somewhat larger than a month ago, although many consumers continue to buy from hand-to-mouth. Prices on reinforcing steel bars are firm, with 1.90c. per lb., base Pittsburgh, the general asking price for stock lengths by mills. From local stock, less than 10-ton lots are generally 3.01½c. per lb., base, and 10-ton and larger lots, 2.61½c. to 2.71½c.

Cast Iron Pipe.—The feature of the cast iron pipe market is the volume of quiet buying. Open municipal business is scarce; 100 tons of 8-in. pipe wanted by Medford, Mass., bids closing Aug. 24, is the only tonnage reported. The United States Cast Iron Pipe & Foundry Co. has sold 150 tons of 6-in. pipe to Newton, Mass. The range on 4-in. pipe is \$45.10 to \$46.10 a ton, delivered common Boston freight rate points, and on 6-in. to 12-in., \$41.10 to \$42.10. The usual \$5 differential is asked on class A and gas pipe.

Coke.—The coke situation is unchanged. New England fuel remains at \$11 a ton, delivered within a \$3.10 freight rate zone. The demand for

foundry fuel is steadily gaining owing to an increase in the current and prospective melt of iron. The announcement that hard coal will be advanced Sept. 1 has stimulated the demand for domestic coke.

Old Material.—A further advance has occurred in prices of heavy melting steel, rails, borings, skeleton, flashings, shafting, axles, pipe and machinery cast. The advance in machinery cast is based on dwindling supplies and increased demand from New England consumers, and that on other materials is due to a better Pennsylvania steel mill demand. Now that prices have recovered somewhat, owners of material are reluctant to sell, and the tonnage of scrap moved out of New England the past week did not increase much. The export market continues fairly active at \$9.25 a ton, on dock here, for No. 1 steel, and at \$8.50 to \$8.75 for No. 2 steel. One steamer is finishing loading for Danzig and another will load next month for the same port.

Buying prices per gross ton, f.o.b. Boston rate shipping points:

No. 1 heavy melting steel.	\$9.50 to \$9.75
Scrap T rails.....	8.50 to 9.00
Scrap girder rails.....	8.00 to 8.25
No. 1 railroad wrought....	8.50 to 9.00
No. 1 yard wrought.....	7.00 to 7.50
Machine shop turnings....	5.00 to 5.50
Cast iron borings (steel works and rolling mill).	5.50 to 6.00
Bundled skeleton, long....	7.00 to 7.50
Forge flashings.....	7.00 to 8.00
Blast furnace borings and turnings .....	5.00 to 5.50
Forge scrap .....	5.50 to 6.00
Shafting .....	12.00 to 12.50
Steel car axles.....	14.00 to 14.50
Wrought pipe 1 in. in diameter (over 2 ft. long)	8.00 to 8.50
Rails for rolling.....	9.50 to 10.00
Cast iron borings, chemical	9.50 to 10.00

Prices per gross ton deliv'd consumers' yards:

Textile cast .....	\$13.50 to \$14.00
No. 1 machinery cast.....	15.00 to 15.50
No. 2 machinery cast.....	13.50 to 14.50
Stove plate .....	10.00 to 10.50
Railroad malleable .....	13.50 to 14.50

## Canada

### Iron and Steel Business Continues at High Level for This Time of Year

TORONTO, ONT., Aug. 21.—The betterment that has featured business in the Canadian iron and steel industry since the beginning of this year continues. Demand has been holding at a high level.

The financial report of the Lake Superior Corporation for the year ended June 30, last, shows sales for the year at \$14,740,613, compared with \$10,775,558 for the preceding year, or a gain of 37 per cent. Orders on hand at the close of the fiscal year totaled \$3,277,183.

Ross H. McMaster, president Steel Co. of Canada, Ltd., Hamilton, Ont., has outlined a development program of the company to be carried out during the next two years, which will call for an expenditure of between \$6,000,000 and \$7,000,000, funds for which are available in the company's investment account. It has been decided to dismantle the original open-hearth installation, which was supplemented by the building of No. 2 open-

hearth department in 1915-16. The latter department will be extended. Plans also include the replacement of the present 14-in. and 10-in. rolling mills with a modern combination 10-in. and 12-in. train.

Pig Iron.—Business remains steady and local blast furnace representatives report sales at a high level for this season. Demand for merchant iron in lots from 50 to 200 tons reached a total of approximately 800 tons for the week, while inquiries call for close to 1200 tons for delivery during the next six weeks.

Prices per gross ton:

Delivered Toronto	
No. 1 fdy., sil. 2.25 to 2.75.	\$23.10 to \$23.60
No. 2 fdy., sil. 1.75 to 2.25.	23.10 to 23.60
Malleable .....	23.10 to 23.60
Delivered Montreal	
No. 1 fdy., sil. 2.25 to 2.75.	24.50 to 25.00
No. 2 fdy., sil. 1.75 to 2.25.	24.50 to 25.00
Malleable .....	24.50 to 25.00
Basic .....	23.50 to 24.00
Imported Iron, Montreal Warehouse	
Summerlee .....	33.50
Carron .....	33.00

#### Warehouse Prices, f.o.b. Boston

	Base per Lb.
Plates .....	3.365c.
Structural shapes—	
Angles and beams.....	3.365c.
Tees .....	3.365c.
Zees .....	3.465c.
Soft steel bars, small shapes.....	3.265c.
Flats, hot-rolled .....	4.15c.
Reinforcing bars .....	3.265c. to 3.54c.
Iron bars—	
Refined .....	3.265c.
Best refined .....	4.60c.
Norway rounds .....	6.60c.
Norway, squares and flats.....	7.10c.
Spring steel—	
Open-hearth .....	5.00c. to 10.00c.
Crucible .....	12.00c.
Tie steel .....	4.50c. to 4.75c.
Bands .....	4.015c. to 5.00c.
Hoop steel .....	5.50c. to 6.00c.
Cold rolled steel—	
Rounds and hex.....	*3.45c. to 5.45c.
Squares and flats.....	*3.95c. to 6.95c.
Toe calk steel.....	6.00c.
Rivets, structural or boiler.....	4.50c.
Per Cent Off List	
Machine bolts .....	50 and 5
Carriage bolts .....	50 and 5
Lag screws .....	50 and 5
Hot pressed nuts.....	50 and 5
Cold-punched nuts .....	50 and 5
Stove bolts .....	70 and 10

\*Including quantity differentials.

**Structural Steel.**—Sales for the week total more than 10,000 tons for the Toronto and Montreal markets alone. Upward of 35,000 tons of structural steel and 15,000 tons of reinforcing bars are involved in prospective business which is expected to be closed before winter. For the new Customs and Excise building to be erected in Toronto by the Federal Department of Public Works, 4000 tons of reinforcing steel will be required; the T. Eaton Co., Ltd., 190 Yonge Street, Toronto, will call for bids shortly for the erection of a new furniture building at College and Yonge Streets, for which between 7000 and 10,000 tons of structural steel will be needed; the Grand Central Markets Syndicate, Toronto, Ont., has a building construction program for this city requiring the use of 6000 tons of structural steel and 800 tons of reinforcing bars.

**Old Material.**—Shipments of heavy melting steel and turnings to the Hamilton, Ont., district are large, and although most of this is against old contracts, some new business is included. Local dealers report a steady demand for machinery cast and a few other special lines. In the Montreal territory some improvement has featured demand on domestic consumption account, but export business has declined. Dealers are purchasing both for direct shipment and for winter needs, and yards are fairly well stocked. Prices are firm but unchanged.

Dealers' buying prices:

	Per Gross Ton	
	Toronto	Montreal
Heavy melting steel.....	\$9.00	\$7.00
Rails, scrap .....	10.00	9.00
No. 1 wrought.....	9.00	11.00
Machine shop turnings..	7.00	5.00
Boiler plate .....	7.00	6.00
Heavy axle turnings....	7.50	6.50
Cast borings .....	7.50	5.00
Steel turnings .....	7.00	5.50
Wrought pipe .....	5.00	5.00
Steel axles .....	14.00	20.00
Axles, wrought iron....	16.00	22.00
No. 1 machinery cast....	16.00	16.00
Stove plate .....	13.00	13.00
Standard carwheels .....	16.00	16.00
Malleable .....	13.00	13.00
	Per Net Ton	
No. 1 machinery cast....	15.00	....
Stove plate .....	9.00	....
Standard carwheels .....	13.00	....
Malleable scrap .....	13.00	....

## New Buffalo Plant to Make Cold-Finished Steel Bars

Bliss & Laughlin, Inc., Harvey, Ill., will shortly begin construction of a plant in South Buffalo for the manufacture of cold-finished steel bars and shafting. This plant will be similar to the one now in operation in Illinois. Paul J. Kalman is president of the company and Walter R. Howell is vice-president and general manager. Mr. Kalman is also president of the Kalman Steel Co., which has been established in the Buffalo district for many years, having taken over the plant of the Corrugated Bar Co. in 1923. The new Buffalo plant will cost \$1,000,000.

## Cincinnati

### Pig Iron Market More Cheerful But Business Is Light—Alabama Coke Sold at Low Prices

CINCINNATI, Aug. 21.—Sentiment in the local pig iron market is somewhat more cheerful, being influenced by the firmer tone of Lake Erie and Valley iron. The Lake Erie producers have until lately been selling freely in the Cincinnati district at \$16.50, furnace, or less, but having announced that their minimum for shipment outside the Cleveland district is now \$17, they are expected to become less of a factor in this market. The iron market is quiet, orders being mostly for small lots, and inquiries are not of outstanding size. The Peerless Mfg. Co., Louisville, Ky., is in the market for 300 tons of Southern iron, 2.25 to 2.75 per cent silicon, and another northern Kentucky melter is inquiring for 300 tons of Northern foundry iron. Both of these inquiries are for fourth quarter. There are a few other inquiries,

including one for 400 tons for an Indiana melter. The report that a Columbus, Ohio, furnace has been quoting \$16.50 in this district is said to be incorrect.

Prices per gross ton, deliv'd Cincinnati:

So. Ohio fdy., sil. 1.75 to 2.25 .....	\$19.89
So. Ohio malleable.....	\$20.14 to 20.89
Ala. fdy., sil. 1.75 to 2.25..	19.19
Ala. fdy., sil. 2.25 to 2.75..	19.69
Tenn. fdy., sil. 1.75 to 2.25	19.19
So'th'n Ohio silvery 8 per cent .....	26.89

Freight rates, \$1.89 from Ironton and Jackson, Ohio; \$3.69 from Birmingham.

**Coke.**—The coke market in this immediate district and in Indiana as well has been disturbed by sales of Alabama coke at delivered prices lower than Northern competitors are said to be quoting. Prices quoted by local distributors have not been changed to meet the situation.

## British Exports Fall Off, Imports Higher

### Decline of 9 Per Cent in Outward Movement Affected Most Items—Import Gain Was 4 Per Cent

WASHINGTON, Aug. 21.—Reversing the trend of the past few months, imports of iron and steel into Great Britain increased while exports decreased in July, according to a cablegram received by the Department of Commerce from London. Imports totaled 218,957 gross tons, against 210,405 tons in June, while exports declined to 333,079 tons from 365,890 tons.

Twelve of the 19 classifications into which the British trade is divided showed import gains, while only seven registered losses. The largest increase was in ingots and semi-finished steel, with a total of 95,344 tons in July, against 86,866 tons in June.

Losses in exports were made in 18 of the 22 classifications of this movement. The increases, where made,

were only slight, except in rails, which rose to 34,897 tons from 25,388 tons. Tin plate exports dropped to 43,584 tons from 54,615 tons, and pig iron and ferroalloys showed a decline to 32,272 tons from 39,284 tons.

Returns covering the production of pig iron and raw steel in British furnaces during July showed a decided decrease when compared with June figures. In all, 537,800 tons of pig iron was poured during July, a reduction of 25,900 tons from that made in June. The output of steel totaled only 666,900 tons, against 709,500 tons for June. The end of July saw 10 fewer blast furnaces lighted, leaving but 131 in production. The number of open-hearth furnaces in operation also decreased, dropping to 236, a decline of 26.

#### BRITISH FOREIGN TRADE IN IRON AND STEEL PRODUCTS

(In Gross Tons)

	Imports		Exports	
	June	July	June	July
Pig iron and ferroalloys.....	7,515	5,286	39,284	32,272
Ingots, blooms, billets and slabs...	86,866	95,344	1,372	841
Iron bars, rods and angles.....	8,769	13,703	2,232	2,558
Steel bars, rods and angles.....	36,330	37,367	29,874	25,136
Structural steel .....	12,579	12,326	6,859	6,337
Hoops and strips .....	8,946	12,452	6,176	7,096
Plates and sheets .....	14,830	10,970	47,290	44,318
Galvanized sheets .....	.....	.....	54,167	51,579
Tin plate .....	.....	.....	54,615	43,584
Cast tubes, pipes and fittings.....	5,935	2,256	8,560	7,541
Wrought tubes, pipes and fittings...	5,361	4,879	22,478	20,237
Rails .....	861	1,007	25,388	34,897
Other railroad material.....	627	430	21,016	15,838
Wire .....	5,212	5,215	7,914	6,511
Wire cable and rope.....	.....	.....	1,683	2,326
Wire nails, including staples.....	5,509	5,984	184	169
Other wire manufactures.....	636	767	1,763	1,676
Nails, tacks, rivets and washers...	888	889	1,598	1,185
Bolts, nuts and screws for metal...	1,042	1,401	2,427	2,169
Iron and steel castings.....	1,240	1,618	379	265
Iron and steel forgings.....	1,128	931	140	46
All other .....	6,131	6,132	30,491	26,498
Total .....	210,405	218,957	365,890	333,079



# Non-Ferrous Metal Markets

## Copper Strong But Quiet, Consumers Buying Tin Actively, Lead and Zinc Firm With Buying Moderate

**Copper.**—Buying of copper by both domestic and foreign consumers has been quite heavy. Domestic users have probably contracted for 80 per cent of their September needs thus far this month, and some producers have disposed of all of their copper allotted to domestic consumption for that month. Foreign buying has been confined largely to August deliveries with some September metal sold. Very little October copper has been contracted for. Sales for export have averaged at least 50,000 tons per

THE WEEK'S PRICES. CENTS PER POUND FOR EARLY DELIVERY						
	Aug. 21	Aug. 20	Aug. 18	Aug. 17	Aug. 16	Aug. 15
Lake copper, New York.....	14.75	14.75	14.75	14.75	14.75	14.75
Electrolytic copper, N. Y.*.....	14.50	14.50	14.50	14.50	14.50	14.50
Straits tin, spot, N. Y.....	47.87½	47.75	....	48.30	48.25	48.12½
Lead, New York.....	6.20	6.20	6.20	6.20	6.20	6.20
Lead, St. Louis.....	6.00	6.00	6.00	6.00	6.00	6.00
Zinc, New York.....	6.60	6.60	6.60	6.60	6.60	6.60
Zinc, St. Louis.....	6.25	6.25	6.25	6.25	6.25	6.25

\*Refinery quotation; delivered price ¼c. higher.

month up to August, but thus far this month probably not more than 30,000 tons has been placed under contract, according to some estimates in the trade. Prices remain firm at the levels which have prevailed since late in May: electrolytic copper at 14.75c., delivered in the Connecticut Valley, and at 15c., c.i.f. usual European ports, as the official quotation of Copper Exporters, Inc. Following a fairly active week, Monday and Tuesday the market was quiet and featureless. Lake copper is quiet but firm at 14.75c. to 14.87½c., delivered.

**Tin.**—Continued fairly heavy buying by consumers for comparatively nearby delivery is still the feature of the market. Sales for the week ended Saturday, Aug. 18, probably totaled

1500 tons. Sellers regard this movement as indicating that consumers are short of stocks and have postponed their buying until nearly the last moment. Dealers, on the other hand, are nervous and are doing little business. Consumers have been buying principally for spot and August delivery as well as the first half of September. Demand for all September delivery has been light and, up to Saturday, October-November-December delivery had received little attention. This was regarded as significant and as a feature of strength for the future. Monday, however, consumers again became very active, taking 500 to 600 tons, and began to absorb the later deliveries already referred to. On Tuesday at least 500 tons for de-

### Metals from New York Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	50.00c. to 51.00c.
Tin, bar .....	52.00c. to 53.00c.
Copper, Lake .....	15.75c.
Copper, electrolytic .....	15.50c.
Copper, casting .....	14.75c.
Zinc, slab .....	7.25c. to 7.75c.
Lead, American pig.....	7.25c. to 7.75c.
Lead, bar .....	9.25c. to 10.25c.
Antimony, Asiatic .....	12.50c. to 13.00c.
Aluminum No. 1 ingots for re-melting (guarant'd over 99% pure) .....	25.00c. to 26.00c.
Alum. ingots, No. 12 alloy .....	24.00c. to 25.00c.
Babbitt metal, commerc'l grade .....	30.00c. to 40.00c.
Solder, ½ and ½ .....	32.50c. to 33.50c.

### Metals from Cleveland Warehouse

#### Delivered Prices Per Lb.

Tin, Straits pig.....	54.50c.
Tin, bar .....	58.50c.
Copper, Lake .....	14.85c.
Copper, electrolytic .....	14.85c.
Copper, casting .....	14.00c.
Zinc, slab .....	8.00c.
Lead, American pig.....	6.75c. to 7.00c.
Antimony, Asiatic .....	16.00c.
Lead, bar .....	9.50c.
Babbitt metal, medium grade.....	18.50c.
Babbitt metal, high grade.....	58.00c.
Solder, ½ and ½ .....	32.00c.

### Rolled Metals from New York or Cleveland Warehouse

#### Delivered Prices, Base Per Lb.

<b>Sheets—</b>	
High brass .....	19.25c.
Copper, hot rolled.....	24.00c.
Copper, cold rolled, 14 oz. and heavier .....	25.75c.
<b>Seamless Tubes—</b>	
Brass .....	24.12½c.
Copper .....	25.00c.
Brazed Brass Tubes.....	27.25c.
Brass Rods .....	17.00c.

#### From New York Warehouse

#### Delivered Prices, Base Per Lb.

Zinc sheets (No. 9), casks .....	10.00c. to 10.50c.
Zinc sheets, open.....	11.00c. to 11.50c.

## Non-Ferrous Rolled Products

Mill prices on bronze, brass and copper products are unchanged. Zinc sheets have been quoted at 9.75c., base, since the advance of July 30, and lead full sheets at 10c. to 10.25c. since May 29.

### List Prices, Per Lb., f.o.b. Mill

On Copper and Brass Products, Freight up to 75c. per 100 Lb. Allowed on Shipments of 500 Lb. or Over

<b>Sheets—</b>	
High brass .....	19.25c.
Copper, hot rolled.....	23.50c.
Zinc .....	9.75c.
Lead (full sheets).....	10.00c. to 10.25c.

<b>Seamless Tubes—</b>	
High brass .....	24.12½c.
Copper .....	25.00c.

<b>Rods—</b>	
High brass .....	17.00c.
Naval brass .....	19.75c.

<b>Wire—</b>	
Copper .....	16.75c.
High brass .....	19.75c.
Copper in Rolls.....	22.50c.
Brazed Brass Tubing.....	27.25c.

### Aluminum Products in Ton Lots

The carload freight rate is allowed to destinations east of Mississippi River and also to St. Louis on shipments to points west of that river.

Sheets, 0 to 10 gage, 3 to 30 in. wide .....	33.00c.
Tubes, base .....	42.00c.
Machine rods .....	34.00c.

### Old Metals, Per Lb., New York

Buying prices represent what large dealers are paying for miscellaneous lots from smaller accumulators and selling prices are those charged customers after the metal has been properly prepared for their uses.

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible .....	12.625c.	14.00c.
Copper, hvy. and wire .....	12.50c.	13.50c.
Copper, light and bottoms .....	10.75c.	12.00c.
Brass, heavy.....	7.00c.	8.25c.
Brass, light.....	6.00c.	7.50c.
Hvy. machine composition .....	9.75c.	10.75c.
No. 1 yel. brass turnings .....	8.75c.	9.50c.
No. 1 red brass or compos. turnings...	5.00c.	5.275c.
Lead, heavy .....	5.00c.	5.375c.
Lead, tea.....	3.75c.	4.25c.
Zinc .....	3.00c.	3.50c.
Sheet aluminum.....	12.50c.	14.50c.
Cast aluminum.....	11.75c.	13.50c.

### Rolled Metals, f.o.b. Chicago Warehouse

(Prices Cover Trucking to Consumers' Doors in City Limits)

<b>Sheets—</b>		Base per Lb.
High brass .....	19.25c.	
Copper, hot rolled.....	23.50c.	
Copper, cold rolled, 14 oz. and heavier .....	25.75c.	
Zinc .....	10.00c.	
Lead, wide .....	9.75c.	
<b>Seamless Tubes—</b>		
Brass .....	25.62½c.	
Copper .....	26.50c.	
Brazed Brass Tubes.....	27.25c.	
Brass Rods .....	17.00c.	

livery from September to November was sold to consumers with the market again very active. Spot Straits tin was quoted Tuesday at 47.87½c., New York. At London, Tuesday, prices fell again, following a sharp decline on Monday, and spot standard was quoted at £211 17s. 6d., future standard at £207 15s. and spot Straits at £214 17s. 6d. At Singapore, the quotation was £211 10s. per ton, with sales of 325 tons, bringing the total for the last week approximately to 1500 tons, a very large volume for Far Eastern sales. A feature of the market is that consumers have been so active recently that the premium on September over December delivery is now close to 1½c. per lb. Arrivals thus far this month have been 3350 tons, with 7730 tons reported afloat.

**Lead.**—Following a week of fairly steady buying, mostly of carload and small lots for spot and August delivery, the market Monday and Tuesday has been quite active. Monday is reported as one of the biggest days in some time, with Tuesday's business also active but in smaller volume. Demand on Monday was for September, with some interest in October metal. On Tuesday, September as well as some August metal was sold, one inquiry calling for 200 tons for August delivery. Prices are firm and unchanged at 6c., St. Louis. The contract quotation of the American Smelting & Refining Co. is still 6.20c., New York.

**Zinc.**—Buying of prime Western zinc has been moderate but quotations have been very steady at 6.25c., East St. Louis, or 6.60c., New York. The market is featureless, each day re-

vealing a moderate amount of inquiry and buying. So far this week (Monday and Tuesday) there has been the average amount of business and inquiry. Ore was again \$40 per ton, Joplin, at the close of last week. Sales were about 9000 tons with shipments about 10,500 tons and output about 12,800 tons, leaving stocks at approximately 38,800 tons on Aug. 18, against about 36,400 tons on Aug. 11.

**Antimony.**—The market is stronger and stocks are becoming scarcer, with not a large amount of metal reported afloat. For spot and future delivery Chinese metal is quoted at 10.25c. and higher, duty paid, New York.

**Nickel.**—Ingot nickel in wholesale lots is quoted at 35c., with shot nickel at 36c. and electrolytic nickel at 37c. per lb.

**Aluminum.**—Virgin metal, 98 to 99 per cent pure, is quoted at 23.90c. per lb., delivered.

#### Non-Ferrous Metals at Chicago

CHICAGO, Aug. 21.—This market is quiet. Prices for tin and lead have advanced and quotations on zinc are lower. The old metal market is sluggish.

*Prices, per lb., in carload lots:* Lake copper, 15.25c.; tin, 50.50c.; lead, 6.15c.; zinc, 6.30c.; in less-than-carload lots, antimony, 11c. On old metals we quote copper wire, crucible shapes and copper clips, 10.75c.; copper bottoms, 9.75c.; red brass, 9.50c.; yellow brass, 7.25c.; lead pipe, 4.75c.; zinc, 3.50c.; pewter, No. 1, 30c.; tin foil, 36.25c.; block tin, 45.25c.; aluminum, 12c.; all being dealers' prices for less-than-carload lots.

## REINFORCING STEEL

**A**WARDS of only 2900 tons and new projects calling for 3700 tons both dropped below the average of recent weeks. The following awards include no jobs of outstanding size:

QUINCY, MASS., 100 tons, stores and offices, to Morrison-Stevens Co.  
NEW YORK, 100 tons, miscellaneous work at Hunt's Point station of Consolidated Gas Co., to McClintic-Marshall Co.  
BROOKLYN, 110 tons, Pierpont apartment hotel, to Carroll-McCreary Co., Inc.  
STATE OF PENNSYLVANIA, 140 tons, road work in Bedford and Somerset counties, to Truscon Steel Co.  
CHICAGO, 450 tons, rail steel, apartment building on Fullerton Parkway, to Calumet Steel Co.  
CHICAGO, 360 tons, two public schools; 180 tons, to Concrete Engineering Co., and 180 tons to unnamed bidder.  
CHICAGO, 135 tons, bridge for Baltimore & Ohio Railroad, to Jones & Laughlin Steel Corporation.  
GALESBURG, ILL., 190 tons, reservoir, to unnamed bidder.  
PEORIA, ILL., 100 tons, Young Women's Christian Association building, to Concrete Engineering Co.  
SIOUX CITY, IOWA, 200 tons, building for Swift & Co., to Concrete Engineering Co.  
OMAHA, NEB., 200 tons, Illinois Central elevator, to unnamed bidder.  
SEATTLE, WASH., 150 tons, Second Avenue,

South, viaduct, to Northwest Steel Rolling Mills.

SEATTLE, 100 tons, two bridges for State Highway Department, to Northwest Steel Rolling Mills.

OAKLAND, CAL., 130 tons, office building at Twenty-ninth and Summit Streets, to Pacific Coast Steel Co.

LOS ANGELES, 225 tons, loft building at 1022 Santee Street, to unnamed bidder.

LOS ANGELES, 190 tons, apartment building at 1432 Hope Street, to unnamed bidder.

#### Reinforcing Bars Pending

Inquiries for reinforcing steel bars include the following:

WALTHAM, MASS., 100 tons, hospital.

NEW YORK, 110 tons, miscellaneous work in Mott Haven yards of New York, New Haven & Hartford Railroad.

BUFFALO, 350 tons, flooring for Rand Building.

BUFFALO, 150 tons, additional bins for Bessemer Cement Co.

ERIE, PA., 500 to 600 tons, West Side High School.

EAST CHICAGO, IND., 600 tons, plant building for United States Gypsum Co.

CHICAGO, 100 tons, building for Peoples Furniture Co.

PHOENIX, ARIZ., 120 tons, two bridges for Highway Commission, at Cottonwood and Leroux, Wash.; bids Sept. 4.

SALEM, ORE., 260 tons, bridge over Mill Creek; bids Sept. 4.

PORTLAND, ORE., 160 tons, bridge over

Deschutes River near Maupin; Kuckenburg & Wittman, low bidders.

SACRAMENTO, CAL., 100 tons, paving in Sacramento County; L. C. Kalstedt, low bidder.

SACRAMENTO, 395 tons, paving in Sonoma County; bids Sept. 5.

WESTLEY, CAL., 210 tons, West Stanislaus Irrigation District; bids Sept. 1.

OAKLAND, CAL., 420 tons, South Spillway, Jackson Creek Spillway and Pardee Reservoir for East Bay Municipal Utility District; bids Sept. 7.

## RAILROAD EQUIPMENT

**O**RDERS for 500 gondola car bodies for the Chesapeake & Ohio, and an inquiry for 100 to 200 gondola cars from the Illinois Traction System, were the outstanding developments in this market last week. The Great Northern is in the market for 10 locomotives, and six locomotives have been placed for export to three countries. Details of the week's business follows:

Great Northern is in the market for 10 mallet type locomotives.

Chesapeake & Ohio has ordered 300 hopper bottom gondola car bodies and repairs to trucks from Richmond Car Works and 200 similar units from American Car & Foundry Co.

Illinois Traction System, Springfield, Ill., is inquiring for from 100 to 200 composite gondola cars of 50 tons' capacity.

Chilean State Railways is inquiring for 20 passenger coaches.

American Railroad of Porto Rico expects to purchase 100 20-ton cane cars.

Chicago, St. Paul, Minneapolis & Omaha is inquiring for six additional gas-electric rail motor cars.

Kwang Tung Yueh Han, Canton, China, has ordered two 4-8-2-type locomotives from Baldwin Locomotive Works.

Mogyana Railway, Brazil, has ordered two 4-6-0-type locomotives from American Locomotive Co.

National Railways of Mexico has ordered two 4-6-2 locomotives from American Locomotive Co.

Illinois Central has ordered one 600-hp. oil electric locomotive from Ingersoll-Rand, Inc., and General Electric Co.

Reading Railroad is inquiring for two combination passenger and baggage gas-electric cars, three combination passenger, baggage and mail gas-electric cars and three trailers.

Cuyamel Fruit Co., New Orleans, is inquiring for 75 banana cars.

Midland Utilities Co. of Indiana has ordered two steel underframe caboose cars for service on Chicago, South Shore & South Bend from American Car & Foundry Co.

Cities Service Co. has ordered 10 tank cars from American Car & Foundry Co.

Sanitary District of Chicago has taken bids on 54 air dump cars of 30 cu. yd. capacity.

Use of the air mail between its Aurora, Ill., plant and its Pacific Coast factory at Los Angeles has made possible the production and shipment three or four days ahead of schedule of an elevator or conveyor built by the Stephens-Adamson Mfg. Co., according to C. H. Adamson, secretary of the company. The saving in time has been traced directly to the regular use of the air mail.



## Fabricated Structural Steel

### Brooklyn Department Store Takes 20,000 of Awards of 53,400 Tons—10,580 Tons Go for River Barges

WITH 20,000 tons for a department store building in Brooklyn and 10,580 tons required for 92 Mississippi River barges, awards of fabricated structural steel reported in the last week amounted to 53,400 tons. New projects, calling for 20,800 tons, included 7200 tons of plates for a municipal water undertaking at Oakland, Cal. Awards follow:

BOSTON, 200 tons, theater in Brighton district, to A. L. Smith Iron Works.  
CAMBRIDGE, MASS., 250 tons, hospital, to New England Structural Co.  
FALL RIVER, MASS., 125 tons, bank, to unnamed local fabricator.  
NEW HAVEN, CONN., 1000 tons, high school, to Levering & Garrigues Co.  
NEW YORK, 1500 tons, apartment house at Ninety-fourth Street and Central Park West, to Easton Structural Steel Co.  
BROOKLYN, 20,000 tons, department store buildings for Abraham & Straus, to Post & McCord, Inc.; 6200 tons in first unit to be erected immediately.  
BROOKLYN, 1250 tons, Pierpont apartment building, to Dreier Iron Works.  
HARMON, N. Y., 250 tons, shop building for New York Central Railroad, to American Bridge Co.  
ERIE RAILROAD, 250 tons, bridge at Rutherford, N. J., to Phoenix Bridge Co.  
ATLANTIC CITY, N. J., 350 tons, garage for Chalfonte-Haddon-Hall, to Bethlehem Steel Co.  
CARNEGIE, PA., 100 tons, mill building, for Superior Steel Corporation, to Fort Pitt Bridge Works.  
PITTSBURGH, 120 tons, warehouse for Pennsylvania Railroad, to Pittsburgh-Des Moines Steel Co.  
PITTSBURGH, 150 tons, Brookline public school, to McClintic-Marshall Co.  
PITTSBURGH, 500 tons, Dithridge Street apartment building, to Levinson Steel Co., Pittsburgh.  
PITTSBURGH, 130 tons, river barge for American Tar Products Co., to Jones & Laughlin Steel Corporation.  
PITTSBURGH, 600 tons, post office and garage building, to McClintic-Marshall Co.  
TOLEDO, OHIO, 135 tons, Toledo Garage; from Newton-Baxter Co., general contractor, to Massillon Bridge & Structural Co.

DETROIT, TOLEDO & IRONTON RAILROAD, 240 tons, bridge work, to McClintic-Marshall Co.  
MARSHALL, ILL., 800 tons, bridge for Pennsylvania Railroad, to American Bridge Co.  
WILMETTE, ILL., 100 tons, water tank, to Chicago Bridge & Iron Co.  
CHICAGO, 950 tons, bridge, to Gage Structural Steel Co.  
CHICAGO, 350 tons, public school, to Vanderkloot Steel Works, Chicago.  
HAMMOND, IND., 550 tons, power plant, to Vierling Steel Works, Chicago.  
MEMPHIS, TENN., 10,580 tons, 92 barges for Mississippi River Commission; 32 barges, 3650 tons, to Dravo Contracting Co.; 30 barges, 3450 tons, to Ritter-Conley Co., and 30 barges, 3450 tons, to American Bridge Co.  
BIRMINGHAM, ALA., 115 tons, Lower Tallassee Dam for Alabama Power Co., to Ingalls Iron Works.  
NEW ORLEANS, 300 tons, incinerator plant, to Ingalls Iron Works.  
BATON ROUGE, LA., 2800 tons, bridges, Nashville Bridge Co., low bidder.  
STATE OF LOUISIANA, 4300 tons, bridge over Alchafalala River, to Mount Vernon Bridge Co.  
MINNEAPOLIS, 3000 tons, Rand Building, to Minneapolis Steel & Machinery Co.  
DENVER, COLO., 500 tons, public service building, to Minneapolis Steel & Machinery Co.  
SEATTLE, WASH., 200 tons, Second Avenue, South, viaduct, to Nygren Brothers, Seattle.  
VERNON, CAL., 230 tons, oil refining plant for Swift & Co., to McClintic-Marshall Co.  
UPLANDS, CAL., 290 tons, plates, 14 to 22 in. welded pipe, to West Coast Pipe & Steel Co.  
VENTURA, CAL., 570 tons, Bardsdale bridge, to McClintic-Marshall Co.

LOS ANGELES, 100 tons, studio stage for Fox Film Corporation, to McClintic-Marshall Co.  
LOS ANGELES, 100 tons, studio stage on Washington Boulevard for Metro-Goldwyn-Mayer studios, to McClintic-Marshall Co.  
LOS ANGELES, 100 tons, studio stage, at Universal City for Metro-Goldwyn-Mayer studios, to McClintic-Marshall Co.  
RICHMOND, CAL., 300 tons, warehouse for City and Parr Terminal Co., to McClintic-Marshall Co.

#### Structural Projects Pending

Inquiries for fabricated steel work include the following:

WALTHAM, MASS., 350 tons, State hospital.  
STATE OF MASSACHUSETTS, 250 tons, highway bridge.  
NEW YORK, 1500 tons, doctor's building on East End Avenue.  
NEW YORK, 1000 tons, service station for Packard Motor Co.  
NEW YORK, 800 tons, public school No. 187.  
NEW YORK CENTRAL RAILROAD, 500 tons, bridges at Cleveland.  
PHILADELPHIA, 600 tons, hospital for University of Pennsylvania.  
WASHINGTON, 550 tons, Government hangars.  
QUANTICO, VA., 500 tons, marine barracks for United States Bureau of Yards and Docks.  
CLEVELAND, 1400 tons, additional work for Cleveland Union Terminals Co.  
DETROIT, 700 tons, building for Fisher Body Corporation.  
CHICAGO, 1000 tons, First Regiment Armory.  
MILWAUKEE, 1500 tons, Camp Building.  
PORTLAND, ORE., 170 tons, bridge over Deschutes River; Kuckenburg & Wittman, low bidders.  
OAKLAND, CAL., 7200 tons of plates, distributing mains for East Bay Municipal Utility District; bids in.  
OAKLAND, 250 tons, hangar No. 4, Port Commission; Moore Drydock Co., low bidder.  
OAKLAND, 170 tons, Jackson Creek Spillway for East Bay Municipal Utility District; bids Sept. 7.  
SAN FRANCISCO, 1400 tons, pier shed at Pier 45; Pacific Coast Steel Co., low bidder.  
SAN FRANCISCO, 600 to 700 tons, apartment building on Chestnut Street.  
SAN FRANCISCO, 200 to 300 tons, I. Maginn Department Store.

### Steel Castings Orders in July at 46 Per Cent Rate

WASHINGTON, Aug. 21.—Bookings of commercial steel castings in July totaled 66,714 net tons, or 46 per cent of the 144,200 tons capacity of the 129 reporting concerns, according to the Department of Commerce. Orders in June amounted to 71,745 tons, or nearly 50 per cent of capacity. July production totaled 78,397 tons, or 54 per cent of capacity, compared with 91,387 tons, or 63 per cent of capacity, in June.

Of the July orders, 20,483 tons was for railroad specialties, being 30 per cent of this class of capacity, against 22,597 tons, or 34 per cent of such capacity, in June. Orders for miscellaneous castings in July totaled

46,231 tons, or 60 per cent of capacity, against 49,148 tons, or 64 per cent of such capacity, in June.

Orders for steel castings for the seven months ended with July, amounted to 573,644 tons, compared with 611,435 tons for the corresponding period of last year.

Production of railroad castings in July totaled 27,501 tons, or 41 per cent of this class of capacity, compared with 30,742 tons, or 46 per cent of such capacity, in June. Production of miscellaneous castings in July amounted to 50,896 tons, or 66 per cent of this class of capacity, against 60,645 tons, or 79 per cent of this class of capacity, in June.

Production of castings for the seven months ended with July totaled 603,327 tons, against 627,949 tons for the corresponding period of last year.

### Lebanon and Scranton Mills in New Corporation

Following ratification by stockholders of the Lebanon Iron Co., Lebanon, Pa., it is understood that a new company will be formed, which will include the Lebanon company and the recently acquired Scranton Bolt & Nut Co., Scranton, Pa. The new corporation, to be known as the Wrought Iron Co. of America, will probably be headed by Charles Hart, president Delaware River Steel Co., who has been active in reorganizing the Lebanon Iron Co. and arranging for acquisition of the Scranton company. It is reported that H. M. Clymer, general sales manager of the Lebanon company, will be vice-president of the new corporation.

## PERSONAL

GEORGE M. NEWCOMER, who recently retired as first vice-president of F. L. Smidth & Co., New York, after 33 years of service, first became associated with the cement industry in 1893 as sales agent for the Aalborg Cement Co. of Denmark. In 1895 he aided in the formation of the American corporation of the F. L. Smidth Co. and had been prominent in its management until his retirement. HAROLD OSTERBERG, who has been identified with the company for 20 years, most recently as manager of its French and Belgian business, has been elected a vice-president.

JOSEPH H. DILLON, formerly chief engineer at the Coatesville, Pa., plant of the Bethlehem Steel Co., has been made assistant chief engineer at the Wisconsin Steel Works, International Harvester Co., South Chicago.

HORACE C. KNERR, consulting metallurgical engineer, Germantown, Philadelphia, is president of Metallurgical Laboratories, Inc., of Pennsylvania, 1116 West Montgomery Avenue, Philadelphia, which has been formed to specialize in the commercial heat treatment of aircraft parts. A. H. WILSON, JR., is secretary and general manager of the heat treating department, and others associated with the project are John J. Crowe, Arthur L. Collins, Charles William Potts, S. L. Gabel, Donald W. Kent, Horace Drever and Matthew M. Kennedy.

FRANÇOIS DE SAINT PHALLE has resigned as vice-president in charge of foreign sales for the Baldwin Locomotive Works and will devote his entire time to his general partnership in de Saint Phalle & Co.

HOWARD F. KULAS, who has been secretary in charge of production and manufacturing in the Cleveland division of the Midland Steel Products Co. since its formation in 1923, has been appointed vice-president with supervision of sales. J. E. MALONEY, formerly sales manager of the Cleveland plant, has been named general sales manager, succeeding W. G. Langdon, who has resigned.

JOHN W. BRAY, sales manager of the Bullard Machine Tool Co., Bridgeport, Conn., with Mrs. Bray, sailed on the Homeric, Aug. 18, for an extensive European trip. He will visit the Olympia Machine Tool Exhibit in London and will also spend time in Norway, Sweden, Germany, Belgium, Switzerland and Czechoslovakia, returning to this country late in November.

W. G. LANGDON, formerly sales manager of the Midland Steel Products Co., Cleveland, and previously sales manager of the Detroit Pressed

Steel Co., Detroit, has been appointed director of sales of the automotive parts division of the Cincinnati Ball Crank Co., Cincinnati. R. H. WALLACE, formerly manager of the Detroit plant of the Parish Mfg. Co., and more recently works manager of the Detroit plant of the Midland Steel Products Co., has been made director of manufacturing and engineering for the Cincinnati company, which will open a Detroit office at 10-253 General Motors Building on Sept. 1.

DAVID O. STEWART has been appointed St. Louis representative of the Clark Controller Co., Cleveland, and will have headquarters at 619 Bank of Commerce Building.

J. K. WISWELL of Chase, Parker & Co., Boston, dealer in mill supplies and heavy hardware, and Mrs. Wiswell, have sailed for Europe, where they will spend several weeks.

MAX EPSTEIN, founder and president of the General American Tank Car Corporation, has been elected chairman of the board, and ELIAS MAYER, for many years general counsel and vice-president, has succeeded Mr. Epstein as president.

THOMAS W. KENNEDY of the Mystic Iron Works and the Massachusetts Gas Cos., Boston, contrary to reports, is not to sever his connections with these companies. Announcement recently was made in Boston newspapers of the election of Mr. Kennedy as vice-president and secretary of the Boston Whippet Knight Corporation, and the report of his relinquishing his connections with the blast furnace was probably based on this announcement. Mr. Kennedy's connection with the automobile company is purely as an investment.

L. BLAINE SNOW, resident manager at Pittsburgh for Hickman, Williams & Co., and HENRY L. CAULKINS, who serves the company in a similar capacity at Detroit, have been made directors of the firm. Mr. Snow, who has been identified with the company for 12 years, was made Pittsburgh manager in 1919. Mr. Caulkins opened the company's Detroit office in 1923.

G. E. RANGLES, president of the Foote-Burt Co., Cleveland, has returned from a two months' trip to Europe.

WILLIAM JACOBSEN, recently associated with the Asbestos & Mineral Corporation, New York, has been appointed sales manager of the fiber department of the Keasbey & Mattison Co., Ambler, Pa., sales agent for the Bell Asbestos Mines, Inc., Thetford Mines, Quebec, Canada.

JOSEPH THOMPSON, for the last 21 years superintendent of the Steel Car Forge Co., Pittsburgh, has been appointed works manager at Hammond, Ind., for the Standard Steel Car Co., succeeding the late Emil Eiselt. JAMES H. RYAN, who has been located at the Pittsburgh office of the Standard company, has been made assistant works manager.

W. W. DEAL has been elected president of the United States Products Corporation, Birmingham, manufacturer of boiler treatments and distributor of industrial supplies. L. J. SAUERBORN continues as vice-president and general manager.

JOHN N. OSTROM, consulting bridge engineer, Chicago, has removed his office from 547 West Jackson Boulevard to the Engineering Building, 205 Wacker Drive.

ARTHUR L. TUSHBANT has been appointed director of sales for the Great Lakes Chemical Works, 5440 West Jefferson Avenue, Detroit, maker of solder, babbitt metal, lead, zinc, tin and special white metal alloys.

C. W. NIXON, who has been superintendent of the Bessemer, Ala., plant of the Central Foundry Co., has been made assistant general manager of all the company's Southern plants.

C. L. TAYLOR, chief engineer Morgan Engineering Co., Alliance, Ohio, has resigned, effective Sept. 1, to become associated with the Aetna-Standard Engineering Co., Youngstown.

HERBERT J. WATT has been appointed manager of railroad material sales for the Jones & Laughlin Steel Corporation, Pittsburgh, succeeding GEORGE D. BRANSTON. Mr. Watt has been assistant manager of the Pittsburgh district sales department.

THOMAS W. HARDY, for five years chief metallurgist of the Timken Roller Bearing Co., Canton, Ohio, has resigned to become metallurgical engineer in the Department of Mines, Ottawa, Canada.

### Group Insurance for Colorado Company

Over 98 per cent of the 11,000 employees of the Colorado Fuel & Iron Co. have been signed, since July 1, for cooperative group insurance. The total amount now approximates \$20,000,000. Since the issuance of the contract, on which the company pays all costs of the insurance in excess of 60c. a month on \$1,000, there have been two death claims, both due to natural causes. The gross premium now is in excess of \$250,000 annually. The maximum protection an employee can take is \$2,000.



## OBITUARY

FLOYD E. PATTERSON, secretary and treasurer and a director of the American Steel Foundries, Chicago, died on Aug. 12 at St. Luke's Hospital in that city. He was born at Yorktown, Ill., in 1859 and had devoted his entire business life to the steel and allied industries. At the formation of the American Steel & Wire Co. in 1898 he became assistant secretary and New



F. E. PATTERSON

York office manager, continuing with that company until 1902, when the American Steel Foundries was formed. He was elected secretary and treasurer of that company at its founding and retained that position until his death. He was also vice-president and a director of the Griffin Wheel Co., vice-president of the Damascus Brake Beam Co. and president and a director of the Galesburg Malleable Castings Co.

WILSON L. GOODRICH, Eastern sales representative of the A. Finkl & Sons Co., Chicago, died on Aug. 3, at the

Clinton Hotel, Springfield, Mass., after a short illness. He was born at Southington, Conn., and, when 15 years of age, entered the drop forge industry at that city, learning his trade as a die sinker. He continued in the drop forge industry until 1912, when he retired as superintendent of the Page-Storms Drop Forging Co., Chicopee, Mass. After a short period he entered the die block field and since that time had been engaged in the sale of die block and drop forge supplies. Before becoming Eastern representative for the Finkl organization four years ago, he was vice-president and sales manager of the Union Electric Steel Co.

GEORGE O. BERGSTROM, president of the Bergstrom Stove Co., Neenah, Wis., manufacturer of stoves, ranges, etc., died suddenly on July 29. He was 71 years of age and had established the industry more than forty years ago.

CLARENCE H. WAHNER, superintendent Paul E. Mueller Co., Milwaukee, manufacturer of steam and vapor heating plants, died suddenly at Hanover General Hospital on Aug. 13, aged 40 years.

J. B. FORD, for a number of years associated with the Standard Supply Co., Portland, Ind., died recently at his home in Muncie, Ind., aged 69 years. He had been engaged in the sale and manufacture of machinery during the greater part of his business life.

THOMAS G. MEACHEM, for a number of years vice-president and general manager of the New Process Gear Corporation, Syracuse, N. Y., and a pioneer in the development of gears for the automotive industry, died on Aug. 17 at the Mount Sinai Hospital,

New York, following an operation. He had been in ill health for about three months. Born at Onondaga Valley, N. Y., in 1878, Mr. Meachem attended Syracuse High School and St. John's Military Academy. In 1900 he became identified with the New Process Rawhide Co., founded by his father in 1888, which was engaged in cutting rawhide pinions and gears. The company later became the New Process Gear Corporation, and Mr. Meachem was connected with it until 1918, during the greater part of this period as vice-president and general manager. In the automotive field the company first made driving gears for early



T. G. MEACHEM

electric vehicles, but later produced an entire line of timing, transmission, differential and other gears for motor vehicles. The business was taken over by the Willys Corporation in 1918, and Mr. Meachem retired from the company. The following year, with his brother, he founded the Meachem Gear Corporation, of which he was president. When the business was sold to other interests a few years ago, Mr. Meachem retired from active business, but had continued to devote his time to other financial and civic enterprises at Syracuse. He was a member of the Society of Automotive Engineers.

### Expansion in Industrial Use of Electricity

Industrial consumption of electricity is placed by *Electrical World* at 120.2 in July, compared with 116.4 in June, both being based on 100 as the monthly average of 1923-1925. Activity is considerably higher than in July, 1927, when 110.6 was reported. The average for the first seven months of 1928 was 119.9, compared with 115.7 in 1927.

An increase was shown in the metal industries group, which went from 122.7 in June to 124.2 in July. This gain came from the metal-working plants, ferrous and non-ferrous,

which advanced from 123.7 to 126.3, while rolling mills and steel plants at 121.2 remained stationary. Automobile plants, including those making parts, advanced from 136 in June to 143.7 in July. Several industries, however, showed drops, those for textiles and shipbuilding being sharp.

Chromium plated metal in sheets or strips, ready for immediate fabrication, will be marketed by the American Nickeloid Co., Peru, Ill., under the trade name "chromaloid." Articles made from this sheet metal are said to have the corrosion resistance, color and durability of the best chromium plated ware.

### Sheet Steel Seaplane Hangar in Brooklyn

A sheet steel seaplane hangar, now being built by the Guaranteed Garages Corporation, Richmond Hill, N. Y., for the Brooklyn Air Transport, Inc., at Mill Basin, Brooklyn, is to be equipped with leak-proof interlocking device sheets. Every interlocking joint is equivalent to an upright, strengthening the building to carry roof load and walls and withstand storms. The hangar is designed to meet the requirements of the Dock Department or the Government and can be taken down and re-erected with 100 per cent salvage.

## Sheet Sales Increase Heavily in July

Sales of steel sheets showed considerable gain in July over June, being 333,357 tons, as compared with 318,902 tons, according to the monthly report of the National Association of Flat Rolled Steel Manufacturers. However, production fell off 44,000 tons during July, and shipments decreased 30,000 tons. Sales exceeded shipments by 57,047 tons and shipments were 10,625 tons in excess of production. Unfilled orders Aug. 1 were 550,468 tons, a gain of 23,670 tons over July 1. The July report and comparisons follow:

	July	June	May
Total number of mills.....	721	721	721
Capacity per month.....	464,422	471,350	506,000
Percentage reporting.....	70.1	72.2	70.1
Sales.....	333,357	318,902	250,316
Production.....	267,885	311,629	349,367
Shipments.....	278,310	308,741	326,324
Unfilled orders	550,468	526,798	527,477
Unshipped orders.....	106,653	100,904	112,664
Unsold stocks.....	55,280	50,702	54,047
Percentages to Capacity			
Sales.....	102.4	96.5	68.5
Production.....	82.2	94.3	95.6
Shipments.....	85.5	93.4	89.3
Unfilled orders	169.1	159.4	170.4
Unshipped orders.....	32.8	30.5	30.8
Unsold stocks.....	17.0	15.3	14.8

## Gain of 8 Per Cent in Building Permits

Reports from over 600 principal cities, which represent 80 per cent of the urban population of the United States, show a gain of 8 per cent in building permits during July, 1928, as compared with the same month a year ago, according to the national survey report issued by S. W. Straus & Co. The loss in July from June this year was about 8 per cent. This the report does not consider particularly significant, because practically all of the plans for one and two-family houses which are to be erected during the summer months are filed in May or June. In July the total value of building permits was \$338,819,896, compared with \$313,666,388 in July, 1927, and \$368,416,737 in June, this year.

## Steel Barrel Production Continued High

WASHINGTON, Aug. 21.—Production of steel barrels in July totaled 647,844 units, or 55.5 per cent of capacity, against 712,779 or 61.4 per cent of capacity in June, according to reports received by the Department of Commerce from 27 companies owning or operating 31 plants. Shipments in July totaled 645,881 barrels, compared with 717,496 barrels in June, while stocks at the end of July amounted to 55,806 barrels, against 53,868 barrels at the end of June. Unfilled orders at the end of July for delivery within 30 days totaled 341,346 barrels, while at the end of June this total was 319,-

443. Unfilled orders at the end of July for delivery beyond 30 days amounted to 891,066, against 840,313 at the end of June.

Production in July was the greatest yet recorded for that month. It was exceeded by the three preceding months, each of which provided, in turn, a new high record. For the seven months, production has been 4,356,436 barrels, a gain of 10 per cent over the 3,969,974 produced in the first seven months of 1927.

## Automobile Production Ahead of Last Year

WASHINGTON, AUG. 21.—Production of motor vehicles in the United States in July, according to the Department of Commerce, was 390,445, of which 337,933 were passenger cars and 52,512 were trucks. This compares with 396,967 in June, of which 356,439 were passenger cars and 40,528 were trucks. Production in July of last year totaled 268,485, of which 236,868 were passenger cars and 31,617 were trucks.

For the first seven months the total has been nearly 11 per cent ahead of last year, at 2,592,592 against 2,337,459. The gain was wholly in passenger cars, which totaled 2,303,660 against 2,039,488, an increase of 13 per cent. There was a decline of 3 per cent in production of trucks, which fell from 297,971 to 288,932, despite the fact that last month's output of trucks was the highest since September, 1925.

## Sharp Reduction in Foundry Equipment Orders

Orders for foundry equipment in July are reported by the Foundry Equipment Manufacturers Association at 94.8 per cent of the average monthly shipments of 1922-1924. This is a reduction of more than one-third from the 149.1 of June and is the lowest figure since last September. It compares with 89.9 a year ago. Due to exceptionally high orders in May, the three-month moving average has been about 195 for the last three months. This is the highest point which the three-month average has had in some years.

Shipments are reported at 124.8 and unfilled orders at 332.1, both on the basis of monthly shipments as above.

## Wage Earners, Horsepower and Production

Study of the census of manufacturers, made by the National Industrial Conference Board, New York, shows that the average number of horsepower for each wage earner has undergone a steady increase from 2.11 in 1899 to 4.27 in 1925. Iron and steel plants are given the highest horsepower rating, at 8.83 for each wage earner, or more than double the

average. Metals and metal products have 4.21, transportation equipment 3.38, machinery 3.16 and railroad repair shops 2.06 hp. for each wage earner.

Production (reduced in each case to dollars of 1914 purchasing value) shows a fairly steady advance from \$2,992 for each wage earner in 1899 to \$4,681 in 1925. This represents an increase of 56 per cent.

## Better Employment in Metal Trades

Metal trades employment in July is given an index of 101.3 by the National Metal Trades Association, Chicago. The base of 100 is the monthly average of 1925-1927. The current figure is the highest in 16 months. There was a steady decline from March, 1927, to December, and there has been a steady rise since then. Wages in manufacturing industries are given as just above 100, little change having been shown since February. Cost of living is placed at about 97, having been between that figure and 99 for a full year.

## Fabricated Steel Orders and Shipments High

WASHINGTON, Aug. 20.—Orders for fabricated structural steel in July totaled 225,623 tons, or 78 per cent of the capacity of the reporting 201 firms, with monthly capacity of 290,155 tons, according to the Department of Commerce. This compares with 239,540 tons, or 81 per cent of the capacity of the 216 reporting firms, for June. Computed bookings in July were 292,500 tons, against 303,750 tons in June. Computed shipments in July totaled 273,750 tons, or 73 per cent of capacity, compared with 266,250 tons, or 71 per cent of capacity, in June.

Except for June and May, the computed bookings in July were the highest since a year ago, when a total of 345,000 tons was reached. Computed shipments for July were the highest since August, 1927.

## Increase in Wholesale Prices of Commodities

Prices of commodities in July are reported by the United States Bureau of Labor Statistics at 98.3, based on the 1926 average of 100 for 550 commodities. This shows an increase from the 97.6 of June and a much greater gain over the 94.1 of a year ago. Six of the 10 major groups of commodities showed increases over June, the largest gain being 2 per cent, in foods. There were small declines in four groups, of which metals and metal products was one. These showed a drop in both iron and steel and non-ferrous metals and a stationary price situation in agricultural implements, automobiles and other metal products.



# Machinery Markets and News of the Works

## Orders for Machinery Steady

August Business May Not Exceed That of July but  
Is Well Above Midsummer Average

**A**UGUST business in machine tools does not fulfill some expectations for expansion this month in preparation for fall manufacturing activities, but the average is good for midsummer, even though the total for many sellers may be less than that of last month.

Absences of executives on vacations and the growing tendency to shut down plants for one or two-week vacation periods for all employees have tended to delay the placing of orders for machines recently quoted on, but the volume of business in prospect indicates that the slack will be taken up when activities are fully resumed for the fall.

In the Chicago territory the outlook is promising, particularly because of the sustained demand from manufacturers of agricultural equipment. Gasoline engine builders are among those now inquiring for tools. Automobile companies are also prospective buyers. The Studebaker Corporation contemplates issuing a large list at an early date, and the Nash Motors Co., which is building a plant addition, may need additional equipment. Orders are expected by the Chicago trade against lists recently issued by the A. O. Smith Corporation, Milwaukee, and the Chicago, Rock Island & Pacific Railroad.

Production at machine tool plants is being held at a fairly high rate.

## New York

**N**EW YORK, Aug. 21.—Although developments in the first half of August gave promise that machine tool buying might equal that of July, excepting the very large orders placed by the Wright Aeronautical Corporation, the past week has been relatively quiet and a falling off in sales for the month is now indicated. Absences of purchasing executives on vacations and the closing down of some plants for one or two-week vacation periods have had the result of postponing the placing of orders. Outstanding in the week's transactions was the sale of 14 special Ransom grinders by a New York company to a Western manufacturer.

Sales of the Niles-Bement-Pond Co. during the week included 18 Ransom grinders, of which 14 of special design are for a Western manufacturer. Other sales included two 6-ft. and one 4-ft. radial drill and a 48-in. carwheel boring machine. The Pratt & Whitney division reported sales of four No. 2 jig borers, seven lathes and other single tools to various companies.

Plans have been filed by New York Edison Co., Irving Place and Fifteenth Street, New York, for addition to power plant at Fourteenth Street and East River, 106 x 256 ft., to cost close to \$2,000,000. Thomas E. Murray, Inc., 55 Duane Street, is consulting engineer.

Board of Estimate, Municipal Building, New York, is arranging fund of \$37,000,000 for a sewage and garbage disposal plant on Wards Island, including pumping machinery, power equipment, unloading and conveying machinery, and other mechanical equipment, and has authorized President Miller, Manhattan Borough, to carry out preliminary surveys and prepare plans at a cost not to exceed \$650,000. City engineering department, Municipal Building, will be active in project.

Board of Trustees, Children's Village School, Dobbs Ferry, N. Y., has plans for a one-story automobile machine and mechanical shop and trade school at institution, reported to cost in excess of \$75,000 with equipment. P. B. Nichols, Depot Plaza, White Plains, N. Y., is architect.

Texas Co., 17 Battery Place, New York, has approved plans for new oil refining plant near Cody, Wyo., with initial capacity for handling about 5000 bbl. per day, including construction of 12-mile pipe line to Oregon Basin Pool, for crude oil supply. Entire project is reported to cost in excess of \$450,000 with equipment.

Ice and refrigerating machinery, power equipment, conveying machinery and other mechanical equipment will be installed in new addition to ice cream factory of Loft, Inc., Fortieth Avenue and Ninth Street, Long Island City, reported to cost in excess of \$300,000.

International Nickel Co., 67 Wall Street, New York, has arranged a fund of more than \$5,000,000 for new smelting plant of

about 3000 tons per day capacity, and concentrating plant of 4500 tons daily capacity at properties at Sudbury, Ont., to handle output of its Frood mines, and will begin superstructure for various units at early date.

Somerville Iron Works, Somerville, N. J., has work under way on a new factory branch and distributing plant at Bessemer Avenue, S. E. and Seventy-fifth Street, Cleveland, site recently acquired. It will total about 50,000 sq. ft. floor space, and is reported to cost more than \$75,000 with equipment.

Nizinite Metals Corporation, Perth Amboy, N. J., recently organized, has leased property at 303 New Brunswick Avenue, and will install new plant for chrome-zinc plating and other metal-plating work, including metallurgical laboratory. Company is capitalized at \$200,000, and headed by R. L. Tuttle, president, and Emil Stremlau, treasurer. First-noted will be in active charge of plant production.

New Jersey Lamp Works, 21 William Street, Newark, will arrange equipment and facilities at plant for extensive production of new non-glaring headlight for automobiles, recently invented and patented by Asher Maurer, president.

General Tube Co., 49 Empire Street, Newark, manufacturer of sheet iron and other tubing, is having plans drawn for a four-story addition to cost in excess of \$100,000 with equipment. Portion of structure will be used for storage and distributing service. Simon Cohen, 134 Branford Place, is architect.

Stewart Steel Products Co., New York, has removed its offices to 8 West Fortieth Street.

Imp Specialties Corporation, Schenectady, N. Y., has been organized, with capital of \$100,000, to manufacture washing machines and parts. Plant in Schenectady has been rented with privilege of purchase and production will be started this month. Company has received bids on copper and other metal parts but no contracts have been awarded.

Taintor Co., Bayonne, N. J., has let contract for construction of factory building to John W. Ferguson Co., Paterson, N. J., through Lockwood Greene Engineers, Inc., New York.

Progressive Brass Foundry Co., formerly of 3 Ainslie Street, Brooklyn, has moved to larger quarters at 408-10 Park Avenue, Brooklyn.

## New England

**B**OSTON, Aug. 21.—It now develops that of the 50 or more tools on which Boston asked bids for its new Hyde Park district school, only 42 were purchased, the most expensive being discarded owing to lack of funds. Of the tools purchased, Stedfast & Roulston, Inc., sold six; Henry Prentiss & Co., Inc., five; Lynd-Farquhar

## The Crane Market

NEW inquiry for overhead cranes is rather limited and prospective buyers are slow in placing orders. The locomotive crane field is slightly more active with fresh inquiry, particularly for crawl-tread equipment, but orders are slow in materializing. About the largest outstanding inquiry for locomotive cranes is the list from Dwight P. Robinson & Co., New York, for export to Argentina.

Among recent purchases are:

\* Terry & Tench Co., Inc., Grand Central

Terminal, New York, 5-ton truck crane from Browning Crane Co.

Rosenthal Engineering Contracting Co., Inc., 12 East Forty-first Street, New York, 5-ton truck crane from Browning Crane Co.

Sims Construction Co., Philadelphia, 25-ton, 8-wheel, steam-driven, locomotive crane from Browning Crane Co.

Bureau of Standards, Washington, 15-ton, 32-ft. span hand power crane from Roeper Crane & Hoist Works.

Empire Granite Co., Elberton, Ga., 7½-

ton, 30-ft. span, 2-motor, overhead crane from Roeper Crane & Hoist Works.

Canales-Grogan Granite Co., Elberton, Ga., 7½-ton, 30-ft. span, 2-motor, overhead crane from Roeper Crane & Hoist Works.

Newport News Shipbuilding & Dry Dock Co., Newport News, Va., 2-ton, 35-ft. span, 3-motor, cage operated crane from Roeper Crane & Hoist Works.

Link Belt Co., Chicago, a 5-ton electric crane from Manning, Maxwell & Moore, Inc.

Co., 12; Reed-Prentice Corporation, one; J. G. Blount Co., seven; Brown & Sharpe Mfg. Co., five; Hendey Machine Co., three; Joseph Beal & Co., three. Pneumatic Drop Hammer Co., Boston, reports the sale of one small and nine large hammers to New York State, Ohio and Indiana manufacturers. Small tools continue to sell freely.

Homes Products, Inc., Bridgeport, Conn., recently organized to manufacture electric refrigerators under patents of Westinghouse Electric & Mfg. Co., East Pittsburgh, has leased two buildings of local plant of Remington Arms Co., and will occupy at early date for new works.

American Hardware Corporation, New Britain, Conn., has filed plans for a new addition, 30 x 56 ft.

Bird Machine Co., South Walpole, Mass., manufacturer of paper mill machinery, has completed plans for new one-story addition, reported to cost in excess of \$30,000, with equipment.

H. T. McCluskey & Sons, Inc., 525 Grand Avenue, New Haven, Conn., manufacturer of wire cloth, have asked bids on general contract for one-story addition, 42 x 60 ft. Dwight E. Smith, New Haven, is architect.

Chevrolet Motor Co., 110 Cummington Street, Boston, with headquarters at Detroit, has leased two-story and basement building now in course of erection at Vassar and Amesbury Streets, Cambridge, Mass., and will use for parts, service and repair work. Entire project is reported to cost more than \$85,000. Building is scheduled for completion in about four months.

Bids are to close this week for a 41 x 65-ft. manufacturing plant in Kendall Square, Cambridge, Mass., for the Cran-dall Engineering Co. Ralph T. Jackson, 44 School Street, Boston, is the architect.

Permission has been granted the Julian D'Este Co., 9 Spice Street, Boston, to make alterations and improvements to its brass foundry to cost \$3,500.

Olson Brothers, Plainville, Conn., are to build a one-story, 26 x 82 ft. plant addition for manufacture of screw machine products.

M. S. Little Mfg. Co., New Park Avenue, Hartford, Conn., is to build a one-story, 50 x 120-ft. brass foundry unit.

United States Aluminum Co., Fairfield, Conn., is to build a one and two-story office, laboratory and foundry unit, 625 x 250 ft.

Taylor-Hall Welding Corporation, formerly at 3 May Street, Worcester, Mass., is now located at 99 Hope Avenue, Worcester.

## Philadelphia

PHILADELPHIA, Aug. 20.—Edward F. McHugh & Co., Kingston Station, Wilkes-Barre, Pa., have been incorporated with a capital of \$150,000 to manufacture copper moldings for store front construction and to job plate and other glass. Contracts for construction of manufacturing buildings have been let.

Milco Machine Co., Inc., Pottstown, Pa., has been formed to manufacture hat blocking machinery and kindred products. Products will be made in company's own factory and pipe fittings, valves, etc., will be purchased.

Contract has been let by Brown Instrument Co., Roberts Street and Wayne Avenue, Philadelphia, manufacturer of pyrometers and other recording instruments, to Robert E. Lamb Co., 841 North Nineteenth Street, for one-story addition to power house. Ballinger Co., Twelfth and Chestnut Streets, is architect and engineer.

Lester C. Bosler, 269 West Rittenhouse Street, Philadelphia, and associates have organized Automatic Appliances Co., to operate local plant for manufacture of tools and other metal appliances, and will begin production at early date. Morris E. Van Vliet, 436 East Mount Carmel Street, Glenside, Pa., is also interested in new company.

Sleight Metallic Ink Co., 538 North Third Street, Philadelphia, has acquired property at 717-19 West Congress Street, Chicago, 50 x 112 ft., and plans early construction of two-story factory branch and distributing plant to cost about \$35,000.

Philadelphia & West Chester Traction Co., Sixty-ninth and Market Streets, Philadelphia, has awarded general contract to John N. Gill Co., City Center Building, for one-story mechanical shop.

Arrangements have been made by Cramp-Morris Industrials, Inc., Richmond and Norris Streets, Philadelphia, for occupancy of portion of former shipyard of William Cramp & Sons Ship & Engine Building Co., one of its subsidiaries, by De La Vergne Machine Co., manufacturer of ice-making and refrigerating machinery, another division of same parent company, which heretofore has operated main plant at foot of East 138th Street, New York. Marine machine shops and adjoining mechanical units at shipyard will be used by last-noted company, which will remove present works to new location and provide additional equipment for increased output. New plant is scheduled to be ready for service early in November. Company has disposed of New York plant to R. Hoe & Co., Inc., 504 Grand Street, that city, manufacturer

of printing presses, saws, etc., which will remodel and improve for new main factory.

Board of Education, Sellersville, Pa., is said to be planning installation of manual training equipment in new two-story high school at Fifth and Church Streets, estimated to cost \$165,000, for which plans will be drawn by William Martin, duPont Building, Wilmington, Del., architect.

Carlisle Engineering Works, Carlisle, Pa., recently organized by Thomas MacDonald, Carlisle, and associates, with capital of \$50,000, plans early operation of local plant for manufacture of machinery, mill equipment and other mechanical products. Walter C. Stephens, Carlisle, is also interested in new company.

American Utilities Co., operated by Gannett, Seelye & Fleming, Inc., 602 North Second Street, Harrisburg, Pa., operating electric light and power properties in Kentucky, Arkansas, Missouri and other States, has arranged for a bond issue of \$1,000,000, portion of proceeds to be used for expansion and improvements including transmission line construction.

Lancaster Airways, Inc., Lancaster, Pa., J. P. Jones, head, has acquired tract of two acres of land on Manheim Pike, adjoining company airport, and plans early construction of new plant for manufacture of airplane motors, including parts and assembling departments, reported to cost close to \$25,000.

Reading Co., Reading, Pa., has authorized removal of its railroad shops at Seventh and Franklin Streets to another location, where increased facilities will be provided. Buildings abandoned will be leased for industrial service.

## Pittsburgh

PITTSBURGH, Aug. 20.—Actual business in machine tools still is light, but the common tendency is to ascribe this condition to the vacation period and the absence from their offices of men who place orders rather than to a lack of requirements. The prospect, based upon the inquiries on which dealers are figuring, is considered bright. The Westinghouse Electric & Mfg. Co. has yet to buy some tools on its third quarter list. The Carnegie Steel Co. is expected to be in the market shortly for fabricating equipment for its new Pittsburgh warehouse to replace one which the Pennsylvania Railroad bought to get the site for an extension of its produce yard.



Plans have been filed by Board of Education, Fulton Building, Pittsburgh, for new Clifton B. Connelley trade and vocational school on Bedford Avenue, near Fullerton Street, to cost \$1,500,000 with equipment.

Standard Sanitary Mfg. Co., Bessemer Building, Pittsburgh, manufacturer of enameled iron and other sanitary ware, has awarded general contract to Hossler Brothers, Tiffin, Ohio, for three-story addition to plant at Broad Avenue and Fourth Street, Tiffin, reported to cost more than \$75,000 with equipment.

Board of Education of Franklin Township, Greensburg, Pa., is said to be planning installation of manual training equipment in new high school at Newlinsburg, estimated to cost about \$130,000, for which superstructure will soon begin. J. H. Phillips, Pittsburgh, is architect.

David H. Weisberg, 22 Tannehill Street, Pittsburgh, and associates have organized new company to be known as Sun-sine Electric Co., with capital of \$25,000, to operate local plant for manufacture of electrical specialties, and will soon begin production. Morris A. Cooper, 3330 McNeill Place, is also interested in new company.

Board of Education of Hempfield Township, Jeannette, Pa., is considering installation of manual training equipment in new consolidated junior high school on West Newton Road, reported to cost \$140,000, for which plans have been completed by C. H. Sorber, First National Bank Building, Greensburg, Pa., architect.

Goldberg Iron & Steel Co., Columbus, Ohio, operated by Harry and Arthur Goldberg, has acquired an interest in former plant of Becker Steel Co., South Charleston, W. Va., recently sold under receivership proceedings, and will be active in management in connection with proposed operation of works for production of high-speed tool steels. New equipment will be installed at early date. Company will operate under name of Trojan Steel Co.

## South Atlantic

**B**ALTIMORE, Aug. 20.—Benedict Stone Co. of Maryland, Inc., Montford Avenue and Boston Street, Baltimore, has taken over one of main buildings formerly used by Bethlehem Shipbuilding Co., Fort Avenue, Locust Point district, and will remodel and equip for new stone-working plant. Present works will be removed to new location and capacity increased. J. Kemp Bartlett is vice-president. Shipbuilding company has work under way on new drydock and shops to cost more than \$1,000,000.

Pollard Cyanite Co., Burnsville, N. C., recently organized by J. A. Pollard, Burnsville, and associates is said to have plans under way for new mining and refining plant to handle capacity of about 1000 tons of raw rock material per day, estimated to cost in excess of \$450,000.

Carolina Power & Light Co., Raleigh, N. C., is concluding negotiations for purchase of municipal electric lighting plant and property at Fremont, N. C., and plans expansion in that district, including transmission line construction.

Bureau of Yards and Docks, Navy Department, Washington, is asking bids (no closing date stated) for an electric bridge crane for installation at navy yard at San Diego, Cal., specification 5713. Also, until Sept. 5, for steam-generating plant at Quantico, Va., including 400 hp. water-tube boiler, motor-driven pulverizers, pumping machinery, coal and ash

handling equipment with ash tank and traveling weigh larry, ice-making and refrigerating machinery, specification 5602.

School Board, Baltimore, plans installation of manual training equipment in proposed new Northeast junior high school at Shaffer, Sefton and Carter Avenues, where site has recently been acquired, to cost approximately \$500,000, for which William W. Emmart, Union Trust Building, architect, has been engaged to prepare plans.

Maryland Dry Dock Co., Baltimore, is carrying out expansion and improvement program at shipyard in Baltimore harbor, opposite Fort McHenry, and has completed new drydock, 80 ft. wide and 400 ft. long; additional facilities will be provided for repair and reconditioning service in connection with proposed early operation of drydock unit. Hadley F. Brown is vice-president and general manager.

Feldspar Milling Co., Bowditch, (P. O. Micaville) N. C., recently organized, will proceed with construction of new local feldspar mill on tract of land lately acquired, reported to cost more than \$100,000, with machinery, and plans to have ready for occupancy in November. Rudolph Glatly, formerly head of North State Feldspar Co., Micaville, will be in charge of construction and production at new plant. C. P. Rogers, Tryon, N. C., is president.

Drayton Mills, Spartanburg, S. C., are erecting weave building, for which Lockwood Greene Engineers, Inc., is general contractor. Structural steel will be furnished and erected by Carolina Steel & Iron Co., Greensboro, N. C., and sash and glazing will be provided by William Bayley Co., Springfield, Ohio.

## Buffalo

**B**UFFALO, Aug. 20.—A site has been acquired at Buffalo by Bliss & Laughlin, Inc., Harvey, Ill., manufacturer of steel shafting and kindred products, for new branch mill, for which plans will soon be drawn. Initial unit will cost more than \$500,000, with machinery and will provide facilities for employment of about 150 men.

Dupont Rayon Co., River Road, Buffalo, is said to have concluded negotiations for purchase of large tract of land at Waynesboro, near Richmond, Va., as site for new multi-unit mill, to include power house, machine shop, pumping station and other mechanical departments. Entire project is reported to cost more than \$15,000,000.

International Casement Co., Hopkins Avenue, Jamestown, N. Y., manufacturer of steel casements, casement adjustments, etc., is said to have authorized immediate call for bids for new one-story addition to cost more than \$75,000, with equipment, for which plans have been completed by Beck & Tinkham, Bailey Building, architects.

Curtiss Aeroplane & Motor Co., Kail Street, Buffalo, contemplates expansion in plant for considerable increase in present output. It is understood that details will be arranged during fall.

Rochester Empire Power Corporation, Rochester, N. Y., operating Rochester Gas & Electric Corporation and other power utilities in that district, has secured permission to acquire New York Central Electric Corporation, Perry; Elmira Water, Light and Railroad Corporation, Elmira; Marcellus Lighting Co., Geneva; and a number of other light and

power companies in neighboring sections, and will consolidate with its organization. Expansion plans are under consideration, including transmission line construction for connection with different systems, power switching stations and substations.

Department of Public Works, Municipal Building, Buffalo, is arranging for extensions in municipal airport at Cheektowaga, including hangar, repair and reconditioning shop and other units, reported to cost about \$60,000. H. Beck, Huyler Building, Buffalo, is architect.

## Cleveland

**C**LEVELAND, Aug. 20.—Machine tool sales in this territory were quieter the past week than earlier in the month. Orders were confined to single machines. Little new inquiry developed. However, a fair amount of business is in prospect and dealers look for a more active market next month. The demand for turret lathes in single machines is holding up to recent heavy volume.

Ohio Rubber Co., Willoughby, Ohio, has placed contract with Austin Co., Cleveland, for \$50,000 plant extension for manufacture of automobile running boards.

L. D. Round, president Cleveland Chain Co., Cleveland, and associates, have purchased Bridgeport Chain Co., Bridgeport, Conn., and will operate it as a separate company as the Bridgeport Chain & Mfg. Co. Mr. Round will be president of the Bridgeport company and L. D. Hull, secretary and treasurer of the Cleveland company, will hold the same position with the Bridgeport company. Plants now controlled by the Cleveland company in addition to the Bridgeport company include the Krein Chain Co., Wapakoneta, Ohio, and the Seattle Chain & Mfg. Co., Seattle, Wash.

J. C. Viriden and several associates, all of whom were connected with the J. C. Viriden Co., Cleveland, which was recently moved to Philadelphia and merged with another plant, have organized a new company to manufacture residential and commercial lighting fixtures. This plant will be located in the plant formerly occupied by the Viriden company at 6103 Longfellow Street, Cleveland.

Ramsey Chain Co., Albany, N. Y., has opened a branch warehouse and office at 2721 West Twenty-fifth Street, Cleveland. H. M. Davis is district manager.

McKinney Tool Co., Arabella Road and Roseland Avenue, Cleveland, has awarded general contract to A. H. Moss, Berea, Ohio, for one and two-story addition, 60 x 60 ft., and 40 x 40 ft., to cost about \$35,000, with equipment. E. G. Hoefler, Keith Building, is architect. E. W. McKinney is president.

Ohio Public Service Co., Hanna Building, Cleveland, is arranging an expansion and improvement program in plant and system at Elyria, Ohio, and vicinity, to cost about \$500,000. Work will be carried out over a two-year period.

City Council, Marion, Ohio, has acquired tract of about 100 acres of land for municipal airport, and plans construction of hangars, repair and reconditioning shops, oil storage and distributing buildings, and other mechanical units.

National Screw & Mfg. Co., 2440 East Seventy-fifth Street, Cleveland, has plans in progress for new one-story addition, 65 x 85 ft., to cost close to \$45,000 with equipment.

Board of School Trustees, State Normal School, Kent, Ohio, will receive bids until Aug. 31 for manual training equipment

for institution, including drill, bench grinder, lathe and other tools.

Winton Engine Co., 2116 East 106th Street, Cleveland, manufacturer of gasoline engines, Diesel combustion engines, parts, etc., recently organized to take over and expand Winton Engine Works, has arranged for sale of preferred stock to total about \$1,140,000, a portion of fund to be used for expansion and development. Company is said to have plans under way for two one-story units to cost upward of \$60,000 with equipment. George W. Codrington is president.

Board of Education, Newark, Ohio, plans installation of manual training equipment in new junior high school, estimated to cost \$225,000, for which bids are being asked on general contract until Aug. 31.

National Air Transport, Inc., Eastern Division, Riverside Drive, Cleveland, has plans for new hangar, 100 x 120 ft., with repair and reconditioning department, etc., reported to cost close to \$35,000.

Universal Crane Co. has removed its general sales offices from Cleveland to Twenty-eighth and Fulton Street, Lorain, Ohio.

American Fuel Economizer Corporation, 1100 Harter Bank Building, Canton, Ohio, has been formed to manufacture fuel economizer for high and low pressure boilers and to conduct engineering service to ascertain present efficiency of boilers. Company does not contemplate construction of new plant and purchases raw materials in open market.

## St. Louis

**S**T. LOUIS, Aug. 20.—Century Electric Co., 1806 Pine Street, St. Louis, will proceed with construction by day labor on one-story foundry, 240 x 260 ft., at 3937 Market Street, to cost in excess of \$175,000, with equipment. E. S. Pillsbury is president.

City Council, St. Louis, has been authorized to arrange for bond issue of \$2,000,000, for establishment of municipal airport buildings and facilities, including hangars, machine and repair shops, oil storage and distributing buildings, and other mechanical units. City engineering department will be in charge.

Prest Machine Works, 303 East Grand Avenue, Oklahoma City, Okla., has awarded general contract to Reinhardt & Donovan Co., Tradesmen's National Bank Building, for one-story machine shop addition, 100 x 120 ft., for which superstructure will begin at once. Baldwin & Baldwin, Magnolia Building, are architects.

City Council, Lincoln, Neb., has sold bond issue for \$100,000, proceeds to be used for municipal airport, including hangars, repair and reconditioning shops, and other mechanical units.

Muskogee Iron Works, Frankfort and Spaulding Streets, Muskogee, Okla., has plans for new one-story foundry, 140 x 200 ft., reported to cost about \$35,000, with equipment. S. M. McManus is general manager.

Higgin Mfg. Co., 1820 Lydia Street, Kansas City, Mo., manufacturer of weatherstrips, screens, etc., has leased building at 505 West Twenty-fifth Street, and will occupy for expansion. Equipment will be installed at early date.

Radium Springs Water Co., 1316 Oak Street, Kansas City, Mo., is planning construction of new factory and plans

early purchase of sterilizing, bottling, conveying and other mechanical equipment.

## Chicago

**C**HICAGO, Aug. 20.—Miscellaneous orders for machine tools are holding August sales at, or a trifle above, the July rate, making the last two weeks the best early August period a number of Chicago dealers have ever had. Farm implement manufacturers, though heavy buyers in recent months, are now in need of additional equipment, some of which is for special purposes. Gasoline engine builders are also in the market. Studebaker Corporation, South Bend, Ind., has made several small inquiries and contemplates issuing a large list at an early date. Nash Motors Co., Racine, Wis., is building a plant addition. Lists of the A. O. Smith Corporation, Milwaukee, and the Chicago, Rock Island & Pacific are active and orders are expected by the trade at an early date. Fresh inquiry is holding up well and it portrays a favorable outlook for the remainder of this month. Used machines are moving in fair volume and at good prices.

Leinert Valve Co., 310 South Michigan Avenue, Chicago, has received an order from one of the large steel companies in Germany for Leinert patented automatic plate valves for blast furnace blowing engines. The company also received orders from the same source for gas blowing engine piston rings of 1500 mm. diameter, 2000 meters of wire rope 1 11/32-in. diameter and 66,000 kg. tensile strength.

Plans are reported as being under way for the construction of a pipe line to supply El Paso, Tex., with natural gas from Winkler County, Texas, and Lea County, New Mexico.

International Harvester Co., 606 North Michigan Avenue, Chicago, will build factory addition, 180 x 510 ft., to cost \$170,000.

W. H. Hutchinson & Son, manufacturers of bottling machinery, will erect factory building on North Cicero Avenue, between Division and Augusta Streets, Chicago, representing an investment of \$250,000. Construction will be in charge of the Austin Co.

Wilson Steel Products Co., Chicago, will build a one-story plant, 93 x 100 ft. Fred A. Felder, 109 East Twenty-sixth Street, is architect.

Western Packing & Provision Co., 3830 South Morgan Street, Chicago, will install power equipment to cost \$200,000. B. K. Gibson, 3830 South Morgan Street, is architect.

Granger & Bollenbacher, 333 North Michigan Avenue, Chicago, architects, have preliminary plans for a two-story and basement automobile service, repair and garage building, 110 x 160 ft., at Evanston, Ill., to cost in excess of \$150,000 with equipment.

Toledo, Peoria & Western Railroad Co., Peoria, Ill., has work in progress on new engine house with repair facilities at East Peoria, Ill., to cost close to \$85,000 with equipment.

John Deere Harvester Co., Moline, Ill., has awarded general contract to J. H. Hunzinger Co., Security Building, Davenport, Iowa, for four-story and two-story addition to plow shop, estimated to cost in excess of \$200,000 with equipment.

City Council, Chicago, is considering establishment of municipal airport on Lake Michigan, foot of Madison Street,

including hangars, machine and repair shops, oil storage and distributing buildings, and other mechanical units, with entire project to cost more than \$5,000,000.

John W. Henney & Co., Freeport, Ill., manufacturers of automobile bodies, are said to be arranging for purchase of plant and business of Weatherproof Body Corporation, Corunna, Mich., and will consolidate with organization. Purchasing company is increasing capital from 100,000 to 125,000 shares, common stock, and from 25,000 to 50,000, preferred stock, no par value, portion of fund to be used for expansion.

Fox & Fox, 38 South Dearborn Street, Chicago, architects, will soon begin construction of five-story and basement automobile service, repair and garage building, 80 x 140 ft., at Eleventh and State Streets, estimated to cost in excess of \$150,000 with equipment.

Board of Education, Pekin, Ill., contemplates installation of manual training equipment in new two-story high school, estimated to cost \$325,000, for which plans are being prepared by Royer, Danely & Smith, Flat Iron Building, Urbana, Ill., architects.

R. B. Kurzon, 105 West Monroe Street, Chicago, architect, has filed plans for two-story automobile service, repair and garage building at 2546-58 South Michigan Avenue, 140 x 180 ft., to cost about \$100,000 with equipment.

## Detroit

**D**ETROIT, Aug. 20.—Contract has been let by Hupp Motor Car Co., East Milwaukee Street, Detroit, to Everett Winters Co., 1651 East Grand Boulevard, for eight-story and basement addition, reported to cost in excess of \$900,000, with equipment.

Bay City Rubber Co., Bay City, Mich., recently organized, has acquired former local plant of Wildman Rubber Co., and will occupy for manufacture of inner tubes and other rubber goods. New equipment to cost more than \$50,000 will be installed.

Pontiac Pattern & Engineering Co., Pontiac, Mich., is said to have plans nearing completion for one-story foundry, 70 x 80 ft., to cost close to \$25,000, with equipment.

Detroit Edison Co., Second Avenue, Detroit, will make extensions and improvements in automatic power switching stations at Marysville, Conners Creek, Waterman, Madison, Walker and other points, to cost more than \$1,500,000, with equipment.

General Motors Corporation, Detroit, will build one-story addition to plant at Walkerville, Ont., to be equipped primarily for manufacture of axles for Chevrolet and Pontiac automobiles, estimated to cost about \$85,000.

Walter O. Briggs, president of Briggs Mfg. Co., 11631 Mack Avenue, Detroit, manufacturer of automobile bodies, will be head of Verville Aircraft Co., recently organized as an interest of Briggs Commercial & Development Co., of which he is president. New company will specialize in light planes for commercial service, and plans early production in former plant of Rickenbacker Motor Co., Cabot Avenue, lately secured at receivership proceedings.

Grand Rapids Store Equipment Co., Grand Rapids, Mich., recently formed by merger of Grand Rapids Show Case Co. and Welch-Willmarth Corporation, has plans nearing completion for addition to



local plant, reported to cost more than \$75,000. Company will also carry out expansion and improvements at Portland, Ore., plant and is projecting plans for new branch on site to be selected in Texas.

United Steel & Wire Co., Oakland Avenue, Battle Creek, Mich., has awarded general contract without competition to F. J. Skidmore, 59 Guest Street, for new two-story addition, to be equipped largely for storage and distributing service, reported to cost in excess of \$40,000.

Consumers Power Co., Jackson, Mich., will build two new units to steam-operated electric generating plant at Saginaw, Mich., to cost more than \$2,500,000. A new automatic power substation will be built in same city to cost approximately \$200,000.

Wayne County Board of Supervisors, Detroit, has selected tract of land on Pennsylvania Road, about 12 miles from city, as site for new Wayne County Airport, to include construction of hangars, repair and reconditioning shops, oil storage and distributing buildings, and other mechanical units. Entire project is reported to cost more than \$1,000,000.

Monroe Steel Castings Co., Monroe, Mich., has installed Tate-Jones low-pressure, oil-fired, car-type annealing furnace. Car is 6 x 15 ft., with load capacity of 15 tons. Furnace is automatically controlled and is housed in addition built for purpose.

Cincinnati Ball Crank Co., Cincinnati, Ohio, on Sept. 1 will open an office at 10-253 General Motors Building, Detroit, for distribution of automotive parts.

## Milwaukee

MILWAUKEE, Aug. 20.—Production of machine tools continues at an unusually high level for the season, and new business is developing in a satisfactory way. Local shops which are engaged in plant enlargement have placed the bulk of their needs, but still have some purchases to make to round out the new tooling. Inquiry from other centers is fairly active and the outlook for continued good demand is undisturbed. Complaint of a shortage of skilled machinists is general.

Globe Steel Tubes Co., 1345 Burnham Street, West Allis, Milwaukee, is starting construction work on rolling mill addition, 110 x 240 ft., one story, to cost about \$50,000. It is to be ready Oct. 1. Frank J. O'Brien is president and general manager.

National Lumber & Creosoting Co., Superior, Wis., has commissioned Roland C. Buck, Inc., local consulting engineer, to design new plant estimated to cost from \$200,000 to \$300,000. Equipment will include boring and perforating machinery, locomotive crane, gasoline locomotive, etc. George P. Rex is vice-president in charge.

Aluminum Goods Mfg. Co., Manitowoc, Wis., contemplates erection of manufacturing addition to its plant at Two Rivers, Wis., to cost \$450,000 complete. Plans are being drawn by Lockwood, Greene & Co., 400 North Michigan Avenue, Chicago. George Vits is president.

Belle City Malleable Iron Co., Racine, Wis., is erecting addition, 77 x 100 ft., to its annealing building. C. S. Anderson is general manager.

MotoMeter Co., Long Island City, N. Y., has decided to defer until early next year the proposed enlargement of its

Western division, National Gauge & Equipment Co., LaCrosse, Wis., according to P. M. Gelatt, president of the division, upon his return from a visit to the general offices.

Wesley Steel Treating Co., 651 South Pierce Street, Milwaukee, is building a one-story fireproof addition, 45 x 51 ft., according to plans by Siebert & Kegler, architects, 230 Wisconsin Avenue, local. Charles I. Wesley is president.

A. J. Simonds, Dayton Co., Dayton, Ohio, manufacturer of cutlery, etc., has acquired controlling interest in R. J. Dowd Knife Works, Beloit, Wis., established in 1857. Enlargement of the Beloit plant is in early prospect. G. A. Dowd is general manager.

Seaman Body Corporation, Milwaukee, plans to install power equipment in connection with additions to its automobile body manufacturing plant. This company is a subsidiary of the Nash Motors Co., Kenosha, Wis.

Follen-Strom Mfg. Co. has purchased a new plant in Kenosha, Wis., where it will continue to make check and bond perforating machines.

## Gulf States

BIRMINGHAM, Aug. 20.—Bids will be received by M. G. James, city secretary, Dallas, Tex., until Sept. 7 for power and pumping machinery for municipal waterworks, including two 1000 kw. turbo-generators, complete with accessories; three 300 hp. watertube boilers with auxiliary equipment; two turbine-driven pumping units with rated capacity of 15,000,000 gal. per day, with accessories; and three motor-driven pumping units with capacity of 15,000,000 gal. per day, with accessories; also, for water purification plant with capacity of 32,000,000 gal. daily, including filter piping and accessories. Plans and specifications for latter at office of David Morey, Jr., Praetorian Building, engineer. J. B. Winder, chief engineer of water department.

Board of Commissioners, Mobile, Ala., is asking bids until Sept. 4 for equipment for municipal waterworks, including two 150,000-gal. steel tanks on 75 and 100-ft. towers, respectively; two 100,000-gal. steel tanks, on 75 and 100-ft. towers; and 60,000-gal. tank on 75-ft. tower. Wright Smith is city engineer in charge.

City Commission, Jacksonville, Fla., will receive bids on revised plans on Aug. 27 for municipal machine and repair shop, and service and garage building on West Third Street, reported to cost in excess of \$65,000, with equipment. Bids recently received have been rejected.

Moody-Seagraves Co., Esperson Building, Houston, Tex., is at head of project to construct and operate a 16-in. pipe line from Winkler County, Tex., and Lea County, N. M., adjoining, to El Paso, Tex., and vicinity, about 220 miles, for natural gas supply, reported to cost more than \$2,000,000.

City Council, Oxford, Miss., is asking bids until Sept. 4, for a municipal power plant, and for 2-ton hand-operated traveling crane (recently incorrectly noted in these columns as electric-operated). Frank P. Gates, Edwards Hotel Building, Jackson, Miss., is architect and engineer.

Power equipment, conveying machinery, forced draft equipment and other mechanical equipment will be installed in new packing plant to be erected by Texas Citrus Fruit Growers' Exchange, San Benito, Tex., to cost about \$100,000.

Daltex Spring Bed Co., Dallas, Tex., recently formed by Lyle Marshall, 4905 Swiss Street, and associates, plans early operation of local plant for manufacture of metal bedsteads, springs, etc.

## Cincinnati

CINCINNATI, Aug. 20.—Contract has been let by Armleder Motor Truck Co., John and Exeter Streets, Cincinnati, to Frank Hill Smith & Co., Winters National Bank Building, Dayton, Ohio, for one and three-story addition, to cost close to \$100,000 with equipment.

Wilson-Weesner-Wilkerson Co., 422 Front Street, Knoxville, Tenn., manufacturer of contractors' equipment, has plans for new one-story plant, totaling about 10,000 sq. ft. floor space, with storage and distributing unit adjoining, reported to cost approximately \$30,000 with equipment.

Board of Education, Jackson, Tenn., is considering installation of manual training equipment in new three-story and basement high school, estimated to cost \$230,000, for which bids are being asked on general contract until Aug. 27. R. A. Heavener, K. C. R. Building, is architect.

Ohmer Fare Register Co., Dayton, Ohio, is planning production on large scale of new type of ticket printing register for transportation companies, recently invented by John F. Ohmer, president, and will arrange increased facilities for this purpose.

Air Corps, Material Division, Wright Field, Dayton, Ohio, is asking bids until Aug. 27, for quantities of clevis bolts, castle nuts, shear nuts, cowl pins, shackles, studs, turnbuckle assemblies, union nuts, washers, etc., circular 79; for quantity of conduit, cable and wire, circular 85.

R. E. Franklin, commissioner of public utilities, Jackson, Tenn., is asking bids until Sept. 11 for a motor-driven centrifugal deep-well pump, with controls and accessories, as per specifications at office of E. R. Dike, city engineer.

Board of Shelby County Commissioners, Memphis, Tenn., will soon begin construction of general mechanical works, machine shop, and work house, 75 x 260 ft., at Mullins Station, for county equipment, reported to cost in excess of \$100,000 with equipment.

Board of Education, Bowling Green, Ky., is considering installation of manual training equipment in proposed new junior high school, reported to cost in excess of \$250,000, for which plans will be drawn by Marr & Holman, Stahlman Building, Nashville, Tenn., architects.

## Indiana

INDIANAPOLIS, Aug. 20.—Additions to cost approximately \$40,000 are being made to plant of Federal Foundry Co., Indianapolis, maker of stove castings and subsidiary of American Stove Co., St. Louis. Improvements include added shipping rooms, machine shops, sand storage bins and other storage facilities.

Portion of former plant of Midwest Engine Co., Nineteenth Street and Martindale Avenue, Indianapolis, has been leased by Eaglesfield-Link Co., Brazil, Ind., manufacturer of woodworking machinery, and new plant will be established. Heretofore company has had its machinery manufactured in outside shops, and will use new works primarily for

assembling plant, with proposed later development to include castings and parts manufacture. For present, foundry work will be given out on contract. Dick Link is president; R. D. Eaglesfield is vice-president.

Bastian-Morley Co., Laporte, Ind., manufacturer of water heaters, parts, etc., has acquired land on East Fifty-ninth Street, near Central Avenue, Los Angeles, and will have plans drawn for a Pacific Coast branch factory, reported to cost more than \$50,000 with equipment. S. J. Lonergan is vice-president in charge of production.

Smithfield Township Board of Education, Waterloo, Ind., contemplates installation of manual training equipment in two-story addition to high and grade school at Ashley, reported to cost in excess of \$300,000. E. I. Brown, First National Bank Building, Fort Wayne, Ind., is architect.

City Council, Anderson, Ind., has authorized purchase of tract of 160 acres of land for municipal airport, and will build hangars, repair and reconditioning shops, oil storage and distributing buildings. A fund of \$75,000 has been voted for project.

Studebaker Corporation, South Bend, Ind., manufacturer of automobiles, has awarded general contract to H. G. Christman & Co., 306 Notre Dame Street, for two-story engineering building unit, 240 x 432 ft., reported to cost in excess of \$200,000 with equipment. Albert Kahn, Inc., Marquette Building, Detroit, is architect.

Wheeler-Schebler Carburetor Co., Inc., 1302 Barth Avenue, Indianapolis, manufacturer of automobile accessories, has acquired adjoining property, 130 x 140 ft., and will raze present buildings on site for new one-story addition, reported to cost more than \$50,000 with equipment.

Pullman Car & Mfg. Co., Pullman, Ill., is arranging for removal of its entire engineering department to branch works at Michigan City, Ind., early in September.

## Pacific Coast

**S**AN FRANCISCO, Aug. 17.—Los Angeles Ladder Co., 1630 South Central Avenue, Los Angeles, manufacturer of ladders, hardware products, etc., has awarded general contract to L. R. Armstrong, 144 Glendale Boulevard, for new one-story plant, 150 x 160 ft., on Alameda Street, to cost close to \$40,000 with equipment.

Pacific Gas & Electric Co., 245 Market Street, San Francisco, has made application for permission to issue preferred stock in amount of \$10,000,000, of which about \$3,500,000 will be used for expansion and improvements in power stations and system.

Arizona Edison Co., Douglas, Ariz., is planning construction of new steam-operated electric power plant at Naco, Ariz., to cost more than \$100,000 with transmission lines. Company will also build a power substation, and ice-manufacturing plant at Lowell, Ariz., to cost in excess of \$75,000.

Safety Step Ladder Co., Spokane, Wash., has filed plans for a new factory at 3301 East Sprague Street.

City Council, Los Angeles, has taken lease on Mines' Field, near Inglewood, as site for municipal airport, and has appropriated \$300,000 for development, to include hangars, machine and repair shops, oil storage and distributing buildings, etc.

Central Arizona Light & Power Co., Phoenix, Ariz., is having plans drawn for two-story equipment storage and distributing plant on South Third Avenue, with repair and mechanical facilities, estimated to cost \$100,000 with machinery. Lescher & Mahoney, Phoenix, are architects.

A Seattle firm, the name of which has not yet been publicly announced, has taken a tract of land in Brooklyn district, the industrial section of Portland, with the idea of building a \$250,000 plant within eight months, according to Dorr E. Keasey, of Keasey, Humason & Campbell, real estate dealers, who handled the transaction. The plant will be used to make logging and railway equipment and steel tanks. The site cost \$30,000.

## Canada

**T**ORONTO, ONT., Aug. 20.—Demand for machine tools continues steady and the volume of new business in prospect continues to grow. Current demand is mostly for single tools, with a few orders appearing at intervals for as many as half a dozen tools. A number of lists are being prepared and are expected to appear about the first of next month for equipment for new industrial plants now under construction. Present demand is of a diversified nature and is from many parts of the country. The demand for small tools has been showing improvement of late. Inquiries and sales are reported in better number from the mining fields.

Gale Iron Works, Ltd., A. W. Lau, manager, is asking for prices on equipment for the manufacture of steel sash, pressed steel stairs and ornamental iron work, to be installed at its recently acquired plant at Petrolia, Ont.

Canadian General Electric Co., head office, Toronto, Ont., has awarded contract to R. Sheehy & Sons, 751 George Street, Peterborough, Ont., for the erection of unit No. 1, of addition to its plant at Peterborough, Ont. Bids are now being received by E. G. Paterson, local plant superintendent, Canadian General Electric Co., Park Street, Peterborough, Ont., for the construction of unit No. 2.

Canadian Hydro-Electric Corporation, Gatineau, Que., will start work immediately on construction of a sub-station to cost \$275,000. C. Glidden is engineer.

Gatineau Power Co., subsidiary of the Canadian Hydro-Electric Corporation, Gatineau, Que., proposes to build switching station at Hull, Que., to cost \$275,000.

New Brunswick Power Co., Dock Street, St. John, N. B., has awarded contract to Sanderson & Porter, New York City, for addition to plant on Dock Street there to cost \$760,000, including equipment.

Wyndels Construction Co., Ltd., 654 Aulneau Street, St. Boniface, Man., has been awarded contract for addition to plant of Dominion Wheel & Foundries, Ltd., Archibald Street, St. Boniface, Man. Building to cost \$10,000.

## Foreign

**P**LANS have been approved by General Motors Export Co., General Motors Building, Detroit, operated by General Motors Corporation, same address, for new assembling plant at Bombay, India, to be equipped for initial output of 100 complete automobiles per day, reported

to cost more than \$400,000 with equipment. General Motors India, Ltd., has been organized as subsidiary to carry out project, which is scheduled for completion by end of year.

Embanett Oil Syndicate, Moscow, Russia, operated under direction of Soviet Russian Government Co., is planning construction of new refining plant at Samara, on Volga River, with capacity of about 200,000 tons per year. Amtorg Trading Corporation, 165 Broadway, New York, official buying agency of Soviet Russian Government, has information regarding project.

Town Council, Johannesburg, South Africa, has authorized a fund of about \$2,400,000 for municipal expansion and improvements, including extensions in municipal power department with installation of steam turbo-generating sets and auxiliary equipment; construction of automatic power substation; underground conduit system; sewage disposal works, with pumping machinery and other mechanical equipment; and cold storage and refrigerating plant.

Secretary of Public Works, Supply and Tenders Board, Wellington, New Zealand, is asking bids until Oct. 30 for 110,000-volt transformers, 11,000-volt potential transformers, control panels, control cables, spare parts, etc., as per specifications on file.

South Manchuria Railway Co., Peking, China, is perfecting plans for early construction of new steel mill at Anshan, Manchuria, for manufacture of steel bars, black sheets, railway sleepers, steel poles, and other iron and steel products used in railroad construction and operation.

Koninklijke Nederlandsche Hoogovens en Staalfabriek, in IJmuiden, Netherlands, operating an iron and steel works, is perfecting plans for early construction of a new nitrogen plant, to be operated in conjunction with existing mills. It is purposed to organize a subsidiary company to carry out enterprise. The unit will be equipped for production of ammonia as a by-product of coke-oven gas, with equipment for combining synthetically with nitrogen from air for commercial fertilizer production.

## New Trade Publications

**Electrical Devices.**—Crouse-Hinds Co., Syracuse, N. Y. Bulletin G-2, dealing with groundnuts and other safety circuit devices, and Bulletin G-8, describing and illustrating installations in wiring methods.

**Foundry Cupola Flux.**—Mathieson Alkali Works, Inc., 250 Park Avenue, New York, in a 32-page pamphlet with the title "Why Purite?" presents a series of full-page illustrated expositions of the application of its product. Purite, which is described as a development from the commercial production of sodium carbonate, or soda ash, in fused form, is employed in the foundry cupola as a flux. The text refers to its basic properties, its low melting point and its high chemical activity at cast iron temperatures.

**Ventilating and Metering Equipment.**—P. H. & F. M. Roots Co., Connersville, Ind. Bulletin 40-B2, dealing with the company's new positive displacement meter. Units are built in sizes with hourly capacities ranging from 100 to 1,000,000 cu. ft. per hr., and are adapted to pressures up to and including 100 lb. per sq. in. Bulletin 10-B1 is of general nature, covering blowers, gas pumps, boosters, exhausters, liquid and vacuum pumps, meters and accessories.